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As confidentially submitted to the Securities and Exchange Commission on May 10, 2018, as Amendment No. 4 to the draft registration statement.
This draft registration statement has not been publicly filed with the Securities and Exchange Commission and all information herein remains confidential.

Registration No. 333-

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

Form S-1
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

Liquidia Technologies, Inc.
(Exact name of registrant as specified in its charter)

Delaware	**2836**	**20-1926605**
(State or other jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification Number)

419 Davis Drive, Suite 100
Morrisville, North Carolina 27560
Telephone: (919) 328-4400
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Neal F. Fowler
Chief Executive Officer
Liquidia Technologies, Inc.
419 Davis Drive, Suite 100
Morrisville, North Carolina 27560
Telephone: (919) 328-4400
(Name, address, including zip code, and telephone number, including area code, of agent for service)

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Brian Leaf
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Cooley LLP
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Suite 700
Washington, DC 20004
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Approximate date of commencement of proposed sale to the public:
As soon as practicable after the effective date of this registration statement.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933 check the following box. o

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. o

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. o

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. o

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer" "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer o	Accelerated filer o	Non-accelerated filer ☒ (Do not check if a smaller reporting company)	Smaller reporting company o Emerging growth company ☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act. ☒

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered	**Proposed Maximum Aggregate Offering Price[1][2]**	**Amount of Registration Fee[3]**
Common stock, par value $0.001 per share	$	$

(1) Estimated solely for the purpose of calculating the registration fee in accordance with Rule 457(o) under the Securities Act of 1933.

(2) Includes shares subject to the underwriters' option to purchase additional shares.

(3) Calculated pursuant to Rule 457(o) based on an estimate of the proposed maximum aggregate offering price.

The Registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until the Registration Statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

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SUBJECT TO COMPLETION, DATED MAY 10, 2018

PRELIMINARY PROSPECTUS

Shares

Liquidia Technologies, Inc.

Common Stock

We are offering shares of our common stock. This is our initial public offering and no public market currently exists for our common stock. We expect the initial public offering price to be between $ and $ per share. We have applied to list our common stock on The Nasdaq Capital Market under the symbol "LQDA".

We are an "emerging growth company" as defined in Section 2(a) of the Securities Act of 1933 and will be subject to reduced public company reporting requirements. See "Prospectus Summary—Implications of Being an Emerging Growth Company".

Investing in our common stock involves a high degree of risk. Please read "Risk Factors" beginning on page 13 of this prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

	PER SHARE	TOTAL
Public Offering Price	$	$
Underwriting Discounts and Commissions[(1)]		
Proceeds to Liquidia Technologies, Inc. before expenses		

(1) See "Underwriting" on page 174 for additional information regarding underwriting compensation.

Delivery of the shares of common stock is expected to be made on or about , 2018. We have granted the underwriters an option for a period of 30 days to purchase an additional shares of our common stock. If the underwriters exercise the option in full, the total discounts and commissions payable by us will be $, and the total proceeds to us, before expenses, will be $.

Joint Book-Running Managers

Jefferies **Cowen**

Co-Managers

Needham & Company **Wedbush PacGrow**

Prospectus dated , 2018.

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You should rely only on the information contained in this prospectus or in any free writing prospectus we file with the U.S. Securities and Exchange Commission, or the SEC. Neither we nor the underwriters have authorized anyone to provide you with information other than that contained in this prospectus or any free writing prospectus prepared by or on behalf of us or to which we have referred you. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. We and the underwriters are offering to sell, and seeking offers to buy, common stock only in jurisdictions where offers and sales are permitted. The information contained in this prospectus is accurate only as of the date on the front cover page of this prospectus, or other earlier date stated in this prospectus, regardless of the time of delivery of this prospectus or of any sale of our common stock.

Through and including , 2018 (25 days after the commencement of this offering), all dealers that effect transactions in these securities, whether or not participating in this offering, may be required to deliver a prospectus. This delivery requirement is in addition to a dealer's obligation to deliver a prospectus when acting as an underwriter and with respect to their unsold allotments or subscriptions.

For investors outside the United States: We have not and the underwriters have not done anything that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than in the United States. Persons outside the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offering of the shares of common stock and the distribution of this prospectus outside the United States. See "Underwriting."

TRADEMARKS

This prospectus includes our trademarks, trade names and service marks, such as Liquidia, the Liquidia logo and PRINT, which are protected under applicable intellectual property laws and are the property of Liquidia Technologies, Inc. This prospectus also contains trademarks, trade names and service marks of other companies, which are the property of their respective owners. Solely for convenience, trademarks, trade names and service marks referred to in this prospectus may appear without the ®, ™ or SM symbols, but such references are not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights or the right of the applicable licensor to these trademarks, trade names and service marks. We do not intend our use or display of other parties' trademarks, trade names or service marks to imply, and such use or display should not be construed to imply, a relationship with, or endorsement or sponsorship of us by, these other parties.

MARKET AND INDUSTRY DATA

Unless otherwise indicated, information contained in this prospectus concerning our industry and the markets in which we operate is based on reports, research surveys, studies and similar data prepared by market research firms and other third parties, industry, medical and general publications, government data and similar sources as well as our own internal estimates and research. Decision Resources Group is the primary source for the market data included in this prospectus and we compensated them for use of market data. Although we believe the data from these third-party sources is reliable, we have not independently verified any third-party information. In addition, projections, assumptions and estimates of the future performance of the industry in which we operate and our future performance are necessarily subject to uncertainty and risk due to a variety of factors, including those described in "Risk Factors." These and other factors could cause results to differ materially from those expressed in the estimates made by the independent parties and by us.

PROSPECTUS SUMMARY

This summary highlights selected information contained elsewhere in this prospectus and does not contain all of the information that you should consider before deciding to invest in our common stock. You should read the entire prospectus carefully, including the "Risk Factors," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our financial statements and the related notes included elsewhere in this prospectus, before making an investment decision. Except where the context otherwise requires or where otherwise indicated, the terms "Liquidia," "we," "us," "our," "our company" and "our business" refer to Liquidia Technologies, Inc.

Overview

We are a late-stage clinical biopharmaceutical company focused on the development and commercialization of human therapeutics using our proprietary PRINT® technology to transform the lives of patients. PRINT is a particle engineering platform that enables precise production of uniform drug particles designed to improve the safety, efficacy and performance of a wide range of therapies. We are currently focused on the development of two product candidates for which we hold worldwide commercial rights: LIQ861 for the treatment of pulmonary arterial hypertension, or PAH, and LIQ865 for the treatment of local post-operative pain. Our lead product candidate, LIQ861, is being evaluated in a Phase 3 trial. LIQ861 is a dry powder formulation of treprostinil designed to improve the therapeutic profile of treprostinil by enhancing deep-lung delivery and achieving higher dose levels than current inhaled therapies. We have applied our PRINT technology to enable us to deliver LIQ861 through a convenient, disposable dry powder inhaler, or DPI. We have also applied our PRINT technology to our second product candidate, LIQ865, for which we have recently completed a Phase 1b clinical trial. LIQ865 is designed to deliver sustained-release particles of bupivacaine, a non-opioid anesthetic, to treat local post-operative pain for three to five days through a single administration. In addition to developing our two product candidates, we collaborate, and intend to collaborate, with leading pharmaceutical companies to develop their own product candidates across a wide range of therapeutic areas, molecule types and routes of administration, leveraging our PRINT technology.

Our lead product candidate, LIQ861, is being evaluated for the treatment of PAH, a chronic, progressive disease caused by the hardening and narrowing of pulmonary arteries that can lead to right heart failure and eventually death. Prostacyclin is a vasoactive mediator essential to normal lung function that is deficient in patients with PAH. With PAH, the elevated pressure in the pulmonary arteries strains the right side of the heart as it pumps blood to the lungs. The extra stress causes the heart to enlarge and become less flexible, compromising its ability to push blood out of the heart through the lungs and into the rest of the body. PAH initially presents as exertional dyspnea, lethargy and fatigue and may be confused with other disease states with similar symptoms. PAH often goes undiagnosed or misdiagnosed until symptoms become severe, with the mean time from onset of symptoms to correct diagnosis being more than two years in the United States. As PAH progresses and right ventricular failure develops, exertional chest pain, or angina, exertional syncope and peripheral edema may develop. Following confirmation of diagnosis based on hemodynamic parameters, treatment is recommended to lower pulmonary pressures and treat the symptoms of PAH. Due to delayed diagnosis, many patients already have advanced disease requiring aggressive treatment combining multiple classes of therapy. PAH is a rare disease, with an estimated prevalence in the United States expected to be between 25,000 and 30,000 patients by 2020. PAH is most commonly diagnosed in the developed world, including the United States, Europe and Japan. Today, the mean age of diagnosis is 50 years according to both French and U.S. registries, with more women being diagnosed than men. Patients may have idiopathic PAH in which no underlying cause can be determined or a heritable form of the disease. A large number of PAH patients also have associated comorbidities such as congenital heart disease, HIV, connective tissue diseases like scleroderma, liver diseases, systemic hypertension, obesity, clinical depression, non-PAH related obstructive airways disease, sleep apnea and diabetes.

Decision Resources Group, an independent industry research firm, estimated that in 2016 more than 50% of patients with PAH in the United States were prescribed treprostinil across its three routes of administration (oral, inhaled and parenteral infusion), generating revenue that represented about one-third of the approximately $3.7 billion U.S. market for PAH drug therapies. The inhaled route of administration, in which medication is inhaled directly into the lungs, helps minimize the off-tissue adverse side effects of systemic delivery by delivering the drug directly where it is needed. Tyvaso® (treprostinil, inhaled solution), marketed by United Therapeutics Corporation in the United States, is the standard of care among the inhaled therapies, with more than 80% of inhaled prostacyclin sales in the United States. Current inhaled therapies, including Tyvaso, are delivered by a nebulizer, a device that converts a liquid formulation into mist, and require between four and nine doses per day. Nebulizers require regular care and maintenance, including daily cleaning and access to additional parts and supplies, such as distilled water and a power source, all of which compromise the portability of the device and the quality of life of patients.

We believe LIQ861, if approved, will be the first-to-market inhaled dry powder treprostinil that can be delivered using a convenient, palm-sized, disposable DPI. We believe LIQ861 can overcome the limitations of current inhaled therapies and has the potential to maximize the therapeutic benefits of treprostinil in treating PAH by safely delivering higher doses into the lungs. Based on our *in vitro* studies we believe that the precise size, trefoil-like shape and uniformity of each LIQ861 particle may provide deep-lung delivery of treprostinil and may reduce deposition in the upper airway where irritation and pain have been observed with nebulized treprostinil. If approved, we believe LIQ861 will have the potential to increase the number of patients using the inhaled route of treatment for PAH by providing the benefits of inhaled prostacyclin therapy earlier in a patient's disease progression as well as delaying the burden of starting continuously infused products. As of May , 2018, patients have enrolled in our single, open-label Phase 3 trial, known as INSPIRE, or Investigation of the Safety and Pharmacology of Dry Powder Inhalation of Treprostinil, at trial sites and we have contracted a total of trial sites to enroll patients. The study is designed to evaluate patients who have either been under stable treatment with nebulizer-delivered trepostinil for at least three months and are transitioned to LIQ861 under the protocol or who have been under stable treatment with no more than two non-prostacyclin oral PAH therapies for at least three months and have their treatment regimen supplemented with LIQ861 under the protocol. Of the total enrolled patient population, as of May , 2018, subjects have received at least two weeks of LIQ861 at a stable dose, of whom have been titrated up from the initial starting dose under the protocol. Two weeks is the first scheduled patient assessment.

Our second product candidate, LIQ865, is an injectable, sustained-release formulation of bupivacaine for the management of local post-operative pain for three to five days after a procedure. We believe LIQ865, if approved, has the potential to provide significantly longer local post-operative pain relief compared to currently marketed formulations of bupivacaine. We estimate that there were over 40 million surgeries in our target market, which consists of orthopedic and soft tissue surgeries, performed in the United States in 2016. According to IMS Health, an independent market research firm, the global market for local anesthetics was approximately $776 million in 2016. Post-operative pain management is becoming more important as surgeries increase in volume and complexity and hospitals seek treatments that support faster recovery and time to discharge. Concurrently, the risk of opioid abuse and diversion has led physicians, payors and the U.S. federal government to prioritize pain management strategies that minimize reliance on opioids. Local anesthetics, such as bupivacaine, provide a well-established, non-opioid option for post-operative pain management, but their duration of efficacy has been limited to eight hours or less. The United States Food and Drug Administration, or the FDA, has approved one long-acting local anesthetic, liposomal bupivacaine, but pain relief typically lasts only 24 to 36 hours, according to physicians, and its use in combination with other local anesthetics can result in an unsafe release of drug. In LIQ865, we have engineered the size and composition of the PRINT particles to release bupivacaine over three to five days through a single administration.

Both LIQ861 and LIQ865 are being developed using our proprietary PRINT particle engineering technology, which allows us to engineer and manufacture highly uniform drug particles with independent control over their size, three-dimensional geometric shape and chemical composition. By controlling these physical and chemical parameters of particles, PRINT enables us to engineer desirable pharmacological benefits into product candidates, including prolonged duration of drug release, increased drug loading, more convenient routes of administration, the ability to create novel combination product, enhanced storage and stability and the potential to reduce adverse side effects. Controlling three-dimensional geometric shape and chemical composition of drug particles enables us to research, identify and pursue the improvement of existing therapies and creation of new therapies from existing drugs or new chemical entities, including small molecules and biologics. Our ability to design and control these features of drug particles has the potential to provide significant benefits across the breadth of pharmaceutical applications. Product characteristics and features can be tuned depending on the need of a particular application, drug substance, delivery route and other such considerations. Based on our research to date, we anticipate the ability to: (i) enhance inhaled delivery through the highly uniform geometric shape of each drug particle; (ii) design desired drug release profiles ranging from minutes post-delivery to days, weeks or months depending on need of a target therapy, by controlling the chemical composition of the drug particles and the surface area-to-volume ratio of the particles; (iii) enable combination products where one or more of the chemical constituents can destabilize or interact by encapsulating the desired constituent in a particle to shield it from another constituent during packaging and storage; and (iv) enhance the deposition and retention of topically delivered products by designing particles with a desired charge and/or Young's modulus. Our molding approach, which we branded as "PRINT", or Particle Replication In Non-wetting Templates, combines the precision of the semi-conductor industry with the high throughput of roll-to-roll manufacturing to make highly uniform micro- and nano-particles at a commercially viable scale. Our manufacturing equipment and materials used in the production of our drug particles are proprietary and protected by our patent portfolio and trade secret know-how. Our PRINT equipment is also modular, scalable and cost-effective. We protect our PRINT technology and the resulting engineered particles through a combination of patents, trade secrets, proprietary know-how and licensing arrangements. We have an active patent strategy that covers major geographic markets, including the United States, Europe and Japan.

Initially, our internal pipeline is focused on the development of improved and differentiated drug products containing FDA-approved active pharmaceutical ingredients, or APIs, with established efficacy and safety profiles, which we believe are eligible for the 505(b)(2) regulatory pathway to seek marketing approval in the United States. The 505(b)(2) regulatory pathway can be capital efficient and potentially enable a shorter time to approval. We intend to seek marketing approval in the United States for LIQ861 and LIQ865 under the 505(b)(2) regulatory pathway, which would allow us to rely in part on existing knowledge of the safety and efficacy of the reference listed drugs. LIQ861 and the DPI together will be regulated as a combination product by the FDA. In addition to building our own internal pipeline, we collaborate with leading pharmaceutical companies to develop their own product candidates across a wide range of therapeutic areas, molecule types and routes of administration. Through our collaboration arrangement with GlaxoSmithKline plc and its subsidiaries, collectively, GSK, we apply PRINT technology to novel molecules. GSK applies our PRINT technology broadly across inhaled delivery of their small molecule and biologic chemical entities. If our product candidates receive marketing approval, we plan to commercialize them in the United States by establishing our own sales force and commercial infrastructure. Outside of the United States, we intend to pursue the regulatory approval and commercialization of our product candidates with leading pharmaceutical companies with regional expertise. We intend to manufacture PRINT particles using in-house capabilities. Where appropriate, we will rely on contract manufacturing organizations, or CMOs, to produce, package and distribute our approved drug products on a commercial scale.

Product Pipeline

The following table summarizes key information about clinical-stage product candidates being developed using PRINT technology:

Product	Indication	Formulation & Route	Phase 1	Phase 2	Phase 3	Next Key Milestone	Worldwide Commercial Rights
LIQ861[1]	PAH	Dry powder inhalation				Interim safety data 1H:19	Liquidia
LIQ865	Local, post-operative pain	Sustained-release injectable				Ph2-enabling studies 2H:18	Liquidia
CCI15106	COPD[2]	Dry powder inhalation					GSK

1. After consultation with the FDA, we advanced from a Phase 1 trial directly to a single, pivotal Phase 3 trial and will seek approval under the 505(b)(2) pathway
2. COPD is chronic obstructive pulmonary disease

Our Strategy

Our goal is to develop and commercialize medicines with improved and differentiated product profiles based on our PRINT particle engineering technology. To achieve this goal, we intend to execute the following key elements of our business strategy:

- ***Complete the pivotal, safety and pharmacology Phase 3 trial for our lead product candidate, LIQ861, in PAH.*** We initiated INSPIRE, a single, open-label Phase 3 trial, in 100 patients with PAH. We believe, based on feedback from the FDA, that this clinical trial will support the new drug application, or NDA, filing for our novel inhaled dry powder formulation of treprostinil to treat PAH. We expect to release interim safety data from INSPIRE in the first half of 2019.

- ***Advance our local post-operative pain product candidate, LIQ865, through Phase 2-enabling toxicology studies.*** We completed a Phase 1a clinical trial of LIQ865, our novel long-acting formulation of bupivacaine, in Denmark in March 2017, and a Phase 1b clinical trial in the United States in April 2018. We expect to initiate Phase 2-enabling toxicology studies in the second half of 2018.

- ***Secure regulatory approval and commercialize our internal product candidates independently in the United States and with leading pharmaceutical companies globally.*** We hold worldwide commercialization rights to LIQ861 and LIQ865. Subject to receiving marketing approval, which we intend to pursue in the United States via the 505(b)(2) regulatory pathway, we intend to independently pursue the commercialization of LIQ861 in the United States by establishing targeted sales and marketing teams. After reviewing the results of our Phase 2-enabling toxicology studies for LIQ865, and subject to the availability of sufficient funding, we will develop and commercialize LIQ865 independently, if it is ultimately approved, or seek to license this product candidate to one or more third parties. Outside of the United States, we intend to pursue the regulatory approval and commercialization of LIQ861 and LIQ865 with leading pharmaceutical companies with regional expertise.

- ***Expand our internal pipeline leveraging our PRINT technology.*** We intend to continue targeting diseases where we believe our PRINT technology can improve the efficacy, safety and patient experience of current treatments that have been impaired by suboptimal drug product formulation and delivery. We plan to focus initially on the development of improved and differentiated drug products containing FDA-approved APIs with proven efficacy and safety profiles eligible to use the

505(b)(2) regulatory pathway. In addition, we may expand our clinical development of LIQ861 and LIQ865, where appropriate, into broader indications or new applications.

- ***Pursue strategic collaborations to maximize the value of products enabled by PRINT technology.*** In addition to advancing our own internal product candidates, we intend to continue collaborating with leading pharmaceutical companies to expand the applications for our PRINT technology. Our collaborations help advance new PRINT capabilities, while adding to our intellectual property portfolio.

Our Competitive Strengths

We believe that we have several key strengths that have contributed to the development of our business and that will help us to realize our goal of becoming a biopharmaceutical company across research, development and commercialization activities. Our competitive strengths include:

- ***Our PRINT technology gives us the capability to overcome the constraints of conventional formulation and production methods and can be applied broadly across therapeutic areas, molecule types and routes of administration.*** Our PRINT technology allows us to precisely engineer drug particles in a wide variety of compositions, sizes and shapes and achieve a high level of control over the physical and chemical characteristics of drug particles, as compared to conventional formulation and production methods. PRINT particles can be designed to address specific pharmacological or therapeutic objectives, such as enhancing the route of administration, improving solubility, enhancing stability or extending therapeutic effects. Using our PRINT technology, we are able to engineer, among others, small molecule and biologic particles, single agent drug and combination drug particles and vaccine particles to improve efficacy, safety and convenience for patients. Our internal pipeline strategy is currently focused on developing proprietary innovations to currently approved drug products in order to minimize development risks and increase speed to market.

In particular, we have designed LIQ861 to maximize the therapeutic benefits of treprostinil in treating PAH by safely delivering higher doses into the lungs using a convenient, palm-sized, disposable DPI. We believe that this may lead to a more attractive product profile with a more convenient method of administering the drug, as compared to existing inhaled therapies. We have also designed LIQ865 with the intention of providing patients with local post-operative analgesia for three to five days. We believe this would provide a longer period of pain relief than existing local-acting pain drugs, which could be a positive feature in light of interest in reducing reliance on opioids and non-steroidal anti-inflammatory drugs, or NSAIDs, for local post-operative pain management.

Our PRINT technology is broadly applicable — across therapeutic areas, molecule types and routes of administration — providing us with opportunities for future drug product development.

- ***We have scaled operations with rapid and cost-effective transition to clinical development and commercial production.*** We believe our research and development operations and PRINT technology allow us to transition rapidly and cost-effectively from laboratory to clinical development and commercial-scale manufacture of drug particles. Utilizing well-established techniques from other roll-to-roll manufacturing processes, we have scaled PRINT technology to support the quality and quantity needs for clinical and, we believe, commercial production of our product candidates. We believe our production facilities comply with the FDA's current good manufacturing practices, or cGMP, requirements. The physical equipment for the PRINT technology requires a relatively small footprint, low capital investment and minimal operating costs. We believe that our PRINT technology provides us and our CMOs with the ability to expand production capacity cost-effectively.

- ***We have a strong proprietary position through a combination of patents, trade secrets, proprietary know-how and licensing arrangements.*** We protect our PRINT technology and the resulting engineered particles through a combination of patents, trade secrets, proprietary know-how and licensing arrangements. We have an active patent strategy that covers major geographic markets, including the United States, Europe and Japan. As of April 30, 2018, our patent portfolio, which

includes patents and patent applications we own or co-own, as well as patents and patent applications we have licensed from third parties, such as the University of North Carolina at Chapel Hill, or UNC, comprises 86 issued patents and 36 pending patent applications worldwide. As we develop new product candidates, either independently or with collaborators, we will seek additional patent protection.

- ***We have strong capabilities in pharmaceutical research and clinical development.*** Our research and development team includes 26 employees, led by our senior management, and has extensive experience in clinical development and pharmaceutical research and development activities in our specific areas of research interest.

- ***We have a seasoned management team.*** Our team includes industry veterans with significant experience in drug discovery, development and commercialization. Members of our leadership team have worked across different segments of the pharmaceutical industry, including branded and generic pharmaceuticals, medical devices and manufacturing services. Prior to joining us, our Chief Executive Officer and director, Neal Fowler, served as president of Centocor, Inc., a subsidiary of Johnson & Johnson that is focused on the development and commercialization of biomedicines used to treat chronic inflammatory diseases. Additionally, our President and Chief Financial Officer, Kevin Gordon, previously served as executive vice president and chief operating officer and chief financial officer of Quintiles Transnational Holdings Inc. (now named IQVIA Holdings Inc.), a global biopharmaceutical services provider, and our Chief Operations Officer, Robert Lippe, previously served as executive vice president of operations and chief operations officer at Alexza Pharmaceuticals, Inc. Furthermore, our Senior Vice President, Product Development, Dr. Robert Roscigno, previously served as the executive vice president of GeNO, LLC, where he led the clinical development team working on a novel nitric oxide delivery system, and before that he served as the president and chief operating officer of Lung Rx, Inc., where he was part of the team responsible for bringing Tyvaso through Phase 3 development, and he previously served in multiple leadership positions at United Therapeutics Corporation and its subsidiaries, contributing to the successful development and worldwide commercialization of Remodulin™, which is treprostinil administered through subcutaneous intravenous infusion, for the treatment of PAH. We believe that their experience enables us to evaluate opportunities and build collaboration arrangements that match the breadth of the potential applications of our PRINT technology.

Risks Related to Our Business

Our ability to successfully implement our business strategy is subject to numerous risks, as more fully described in the section entitled "Risk Factors" immediately following this prospectus summary. These risks include, among others:

- We are a clinical-stage biopharmaceutical company with no approved products and no historical product revenue, which may make it difficult for you to evaluate our business, financial condition and prospects.

- We are primarily dependent on the success of our lead product candidate, LIQ861, and to a lesser degree, LIQ865, which are still in clinical development, and these product candidates may fail to receive marketing approval or may not be commercialized successfully.

- Our preclinical studies and clinical trials may not be successful and delays to such preclinical studies or clinical trials may cause our costs to increase and significantly impair our ability to commercialize our product candidates. Results of previous clinical trials or interim results of ongoing clinical trials may not be predictive of future or final results.

- We are planning to pursue the FDA 505(b)(2) pathway to apply for marketing approval of our product candidates in the United States. If we are unable to rely on the 505(b)(2) regulatory pathway, we will be required to seek approval of these product candidates through the 505(b)(1) NDA pathway, which would require full clinical trials to establish safety and effectiveness, and the process of obtaining marketing approval for our product candidates would likely be significantly longer and more costly.

- If we are unable to establish licensing and collaboration arrangements with other pharmaceutical companies on acceptable terms, or at all, we may not be able to develop and commercialize additional product candidates using our PRINT technology.
- We may not be able to build our marketing and sales capabilities or enter into agreements with third parties to market and sell our drug products.
- We depend on GSK for a significant portion of our near-term revenue.
- We depend on third parties for clinical and commercial supplies, including a single supplier for the active ingredient of LIQ861.
- Even if this offering is successful, we expect that we will need further financing for our existing business and future growth, which may not be available on acceptable terms, if at all. Failure to obtain funding on acceptable terms and on a timely basis may require us to curtail, delay or discontinue our product development efforts or other operations. The failure to obtain further financing may also prevent us from capitalizing on other potential product candidates or indications which may be more profitable than LIQ861 and LIQ865 or for which there may be a greater likelihood of success.
- We may be unable to continually develop a pipeline of product candidates, which could affect our business and prospects.
- We may encounter difficulties in enrolling patients in our clinical trials.
- The marketing approval processes of the FDA and comparable regulatory authorities in other countries are unpredictable and our product candidates may be subject to multiple rounds of review or may not receive marketing approval.
- The commercial success of our drug products depends on the availability and sufficiency of third-party payor coverage and reimbursement.
- Our commercial success depends largely on our ability to protect our intellectual property.

Implications of Being an Emerging Growth Company

We qualify as an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012, as amended, or the JOBS Act. As an emerging growth company, we may take advantage of specified reduced disclosure and other requirements that are otherwise applicable generally to public companies. As an emerging growth company:

- we may present only two years of audited financial statements in addition to any required unaudited interim financial statements with correspondingly reduced "Management's Discussion and Analysis of Financial Condition and Results of Operations" disclosure;
- we may provide reduced disclosure about our executive compensation arrangements;
- we are not required to have advisory votes on executive compensation or golden parachute arrangements; and
- we have an exemption from the auditor attestation requirement in the assessment of our internal control over financial reporting.

We may take advantage of these exemptions for up to five years or such earlier time that we are no longer an emerging growth company. We would cease to be an emerging growth company on the date that is the earliest of (i) the last day of the fiscal year in which we have total annual gross revenues of $1.07 billion or more; (ii) the last day of 2023; (iii) the date on which we have issued more than $1.0 billion in nonconvertible debt during the previous three years; or (iv) the date on which we are deemed to be a large accelerated filer under the rules of the SEC. We have chosen to opt out of the extended transition periods available to emerging growth companies under the JOBS Act for complying with new or revised accounting standards. Section 107 of the JOBS Act provides that our decision to opt out of the extended transition periods for complying with new or revised accounting standards is irrevocable. We may choose to take advantage of some but not all of these other exemptions available to emerging growth companies. We have

taken advantage of reduced reporting requirements in this prospectus. Accordingly, the information contained herein may be different from the information you receive from other public companies in which you hold stock.

Corporate Information

Liquidia Technologies, Inc. was incorporated in Delaware on June 8, 2004. Our principal executive offices are located at 419 Davis Drive, Suite 100, Morrisville, North Carolina 27560 and our telephone number is (919) 328-4400. Our website is located at www.liquidia.com. The information on or that can be accessed through our website is not incorporated by reference into this prospectus, and you should not consider any such information as part of this prospectus or in deciding whether to purchase our common stock.

THE OFFERING

Issuer	Liquidia Technologies, Inc.
Common stock offered by us	shares (or shares if the underwriters exercise their option to purchase additional shares in full).
Common stock to be outstanding immediately after this offering	shares (or shares, if the underwriters exercise their option to purchase additional shares in full).
Option to purchase additional shares	We have granted to the underwriters the option, exercisable for 30 days from the date of this prospectus, to purchase up to additional shares of common stock.
Use of proceeds	We estimate that the net proceeds to us from this offering, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us, will be approximately $ million (or approximately $ million if the underwriters exercise in full their option to purchase additional shares of common stock), based on an assumed initial public offering price of $ per share, which is the midpoint of the estimated price range set forth on the cover page of this prospectus. We currently estimate that we will use the net proceeds from this offering to complete our ongoing Phase 3 clinical trial of LIQ861, advance LIQ865 through our planned Phase 2-enabling toxicology studies, fund operations supporting the development of LIQ861 and LIQ865 and repay approximately $2.3 million of outstanding indebtedness. We will use the remainder for working capital and general corporate purposes. See "Use of Proceeds" for more information.
Risk factors	You should read the "Risk Factors" section beginning on page 13 of this prospectus for a discussion of the factors you should carefully consider before deciding to purchase any shares of our common stock.
Proposed Nasdaq Capital Market symbol	"LQDA"

The number of shares of our common stock to be outstanding after this offering is based on 10,122,219 shares of our common stock outstanding as of March 31, 2018, and gives effect to the conversion of all of our outstanding preferred stock and Class B non-voting common stock into shares of our common stock, which will occur automatically upon the closing of this offering, and excludes:

- 23,783,999 shares of common stock issuable upon the exercise of stock options outstanding as of March 31, 2018, with a weighted average exercise price of $0.45 per share;
- shares of common stock issuable upon the exercise of stock options granted after March 31, 2018, with a weighted average exercise price of $ per share;
- 2,146,767 shares of common stock issuable upon the vesting of restricted stock units granted on March 7, 2018 to Kevin Gordon, our President and Chief Financial Officer;

- 4,394,914 shares of common stock issuable upon the exercise of warrants outstanding as of March 31, 2018, with a weighted average exercise price of $0.0008 per share;
- an aggregate of shares of common stock issuable upon the exercise of stock options to be granted to certain of our officers and directors on the date of execution of the underwriting agreement under the 2018 Plan, assuming we sell shares in this offering, at an exercise price equal to the initial public offering price per share;
- shares of common stock issuable upon the vesting of restricted stock units to be granted to Mr. Gordon on the date of execution of the underwriting agreement pursuant to his employment agreement, assuming we sell shares in this offering;
- an additional 5,915,157 shares of common stock reserved for issuance under the Liquidia Technologies, Inc. 2016 Equity Incentive Plan, as amended, or the 2016 Plan, as of March 31, 2018, which shares will no longer be reserved following this offering; and
- an additional shares of common stock that will be made available for future issuance under the Liquidia Technologies, Inc. 2018 Long-Term Incentive Plan, or the 2018 Plan, upon the effectiveness of the registration statement of which this prospectus forms a part.

Unless otherwise indicated, all information in this prospectus reflects or assumes the following:

- the filing of our amended and restated certificate of incorporation and the effectiveness of our amended and restated by-laws upon the closing of this offering;
- the conversion of all of our outstanding shares of preferred stock into an aggregate of shares of common stock upon the closing of this offering;
- no exercise of outstanding options after March 31, 2018;
- a -for- reverse split of our common stock to be effected prior to the completion of this offering; and
- no exercise by the underwriters of their option to purchase up to additional shares of common stock in this offering.

SUMMARY FINANCIAL DATA

The following tables set forth, for the periods and at the dates indicated, our summary financial data. The statement of operations data for the years ended December 31, 2016 and 2017 are derived from our audited financial statements appearing elsewhere in this prospectus. The summary statement of operations data for the three months ended March 31, 2017 and 2018 and our balance sheet data as of March 31, 2018 are derived from our unaudited interim financial statements included elsewhere in this prospectus. Other than for the impacts of adoption of accounting standards, the unaudited interim financial statements were prepared on a basis consistent with our audited financial statements and reflect, in the opinion of management, all adjustments of a normal recurring nature that are necessary for the fair statement of our financial position as of March 31, 2018 and our results of operations for the three months ended March 31, 2017 and 2018. Our historical results are not necessarily indicative of the results that may be expected in any future period and the results for the three months ended March 31, 2018 are not necessarily indicative of results to be expected for the full year ending December 31, 2018, or any other period. You should read the following information together with the more detailed information contained in "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our financial statements and the accompanying notes thereto appearing elsewhere in this prospectus. The summary financial data in this section are not intended to replace the financial statements and are qualified in their entirety by the financial statements and related notes included elsewhere in this prospectus.

	Year Ended December 31,		Three Months Ended March 31,	
	2016	2017	2017	2018
Statement of Operations Data:				
Revenues	$ 13,216,989	$ 7,258,123	$ 1,639,176	$ 925,970
Costs and expenses:				
Cost of sales	918,778	319,759	79,940	27,049
Research and development	23,319,886	24,753,876	6,175,557	7,626,701
General and administrative	4,841,128	10,212,774	2,151,078	2,149,725
Total costs and expenses	29,079,792	35,286,409	8,406,575	9,803,475
Loss from operations	(15,862,803)	(28,028,286)	(6,767,399)	(8,877,505)
Other income (expense):				
Interest income	14,906	268	151	—
Interest expense	(85,865)	(13,010,475)	(2,246,447)	(17,876,795)
Derivative and warrant fair value adjustment	—	11,884,253	(823,051)	(753,887)
Total other income (expense), net	(70,959)	(1,125,954)	(3,069,347)	(18,630,682)
Net loss	(15,933,762)	(29,154,240)	(9,836,746)	(27,508,187)
Other comprehensive loss	—	—	—	—
Comprehensive loss	$ (15,933,762)	$ (29,154,240)	$ (9,836,746)	$ (27,508,187)
Net loss per share, basic and diluted	$ (2.16)	$ (3.08)	$ (1.05)	$ (2.63)
Weighted average shares outstanding, basic and diluted	7,361,596	9,475,083	9,329,157	10,441,880
Pro forma net loss per share, basic and diluted (unaudited)		$		$
Pro forma weighted average common shares outstanding, basic and diluted (unaudited)		$		$

	As of March 31, 2018		
	Actual	Pro forma[1]	Pro forma as adjusted[2]
Balance Sheet Data:			
Cash	$ 17,593,796	$	$
Working capital[3]	4,226,959		
Total assets	29,228,260		
Total debt	12,358,368		
Capital stock and additional paid-in capital	134,199,601		
Accumulated deficit	(141,426,223)		
Total stockholders' (deficit) equity	(7,226,622)		

(1) The pro forma balance sheet data give effect to the conversion of all outstanding shares of preferred stock into an aggregate of shares of our common stock, which will occur automatically upon the closing of this offering.

(2) The pro forma as adjusted balance sheet data give further effect to (i) our sale of shares of our common stock in this offering at an assumed initial public offering price of $ per share, which is the midpoint of the estimated price range set forth on the cover of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us, and (ii) our use of approximately $2.3 million of the proceeds therefrom to repay debt as described in "Use of Proceeds".

(3) We define working capital as current assets less current liabilities.

The pro forma as adjusted information discussed above is illustrative only and will depend on the actual initial public offering price and other terms of this offering determined at pricing. Each $1.00 increase or decrease in the assumed initial public offering price of $ per share, the midpoint of the estimated price range set forth on the cover of this prospectus, would increase or decrease each of pro forma as adjusted cash, working capital, total assets and total stockholders' equity by $ million, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting estimated underwriting discounts and commissions. We may also increase or decrease the number of shares we are offering. Each increase or decrease of 1.0 million in the number of shares offered by us would increase or decrease each of pro forma as adjusted cash, working capital, total assets and total stockholders' equity by $ million, assuming that the assumed initial public offering price remains the same, and after deducting estimated underwriting discounts and commissions.

RISK FACTORS

Investing in our common stock involves a high degree of risk. You should carefully consider the risks described below, as well as the other information in this prospectus, including our financial statements and the related notes and "Management's Discussion and Analysis of Financial Condition and Results of Operations," before deciding whether to invest in our common stock. The occurrence of any of the events or developments described below could harm our business, financial condition, results of operations and growth prospects. In such an event, the market price of our common stock could decline and you may lose all or part of your investment. Additional risks and uncertainties not presently known to us or that we currently deem immaterial also may impair our business operations.

Risks Related to Our Company and our Financial Condition

We have a history of losses, have not commenced commercial operations to date and our future profitability is uncertain.

We have incurred net losses of $15.9 million and $29.2 million for the years ended December 31, 2016 and 2017, respectively, and $27.5 million for the three months ended March 31, 2018. We also had negative operating cash flows in 2016 and 2017 and negative working capital at December 31, 2016 and 2017. As of December 31, 2017 and March 31, 2018, we had an accumulated deficit of $113.4 million and $141.4 million, respectively.

Since our incorporation, we have invested heavily in the development of our product candidates and technologies, as well as in recruiting management and scientific personnel. To date, we have not commenced the commercialization of our product candidates and all of our revenue has been derived from up-front fees and milestone payments made to us in connection with licensing and collaboration arrangements we have entered into. These up-front fees and milestone payments have been, and may continue to be, insufficient to match our operating expenses. We expect to continue to devote substantial financial and other resources to the clinical development of our product candidates and, as a result, must generate significant revenue to achieve and maintain profitability. We may continue to incur losses and negative cash flow and may never transition to profitability or positive cash flow.

We are primarily dependent on the success of our lead product candidate, LIQ861, and to a lesser degree, LIQ865, which are still in clinical development, and these product candidates may fail to receive marketing approval or may not be commercialized successfully.

We have no products approved for marketing in any jurisdiction and we have never generated any revenue from product sales. Our ability to generate revenue from product sales and achieve profitability depends on our ability, alone or with strategic collaboration partners, to successfully complete the development of, and obtain the regulatory and marketing approvals necessary to commercialize one or more of our product candidates. We expect that a substantial portion of our efforts and expenditure over the next few years will be devoted to our product candidates, LIQ861, a proprietary inhaled dry powder formulation of treprostinil, which is intended as an inhaled therapy for pulmonary arterial hypertension, or PAH, and LIQ865, a sustained-release formulation of bupivacaine for the management of local post-operative pain. We do not anticipate generating revenue from product sales for at least the next few years, if ever.

We have completed a Phase 1 clinical trial for LIQ861 and an early Phase 1a clinical trial in Denmark for LIQ865 and a Phase 1b clinical trial for LIQ865 in the United States. We commenced a Phase 3 clinical trial for LIQ861 in the first quarter of 2018, and we expect to initiate Phase 2-enabling toxicology studies for LIQ865 in the second half of 2018. We cannot assure you that our clinical trials, if commenced, will be successful or meet their endpoints.

If we successfully complete the clinical development of LIQ861 and LIQ865, we cannot assure you that they will receive marketing approval. The FDA or comparable regulatory authorities in other countries may

delay, limit or deny approval of our product candidates for various reasons. For example, such authorities may disagree with the design, scope or implementation of our clinical trials, or with our interpretation of data from our preclinical studies or clinical trials. Status as a combination product, as is the case for LIQ861, may complicate or delay the FDA review process. Product candidates that the FDA deems to be combination products, such as LIQ861, or that otherwise rely on innovative drug delivery systems, may face additional challenges, risks and delays in the product development and regulatory approval process. Moreover, the applicable requirements for approval may differ from country to country.

If we successfully obtain marketing approval for LIQ861 and LIQ865, we cannot assure you that they will be commercialized in a timely manner or successfully, or at all. For example, LIQ861 and LIQ865 may not achieve a sufficient level of market acceptance, or we may not be able to effectively build our marketing and sales capabilities or scale our manufacturing operations to meet commercial demand. The successful commercialization of LIQ861 and LIQ865 will also, in part, depend on factors that are beyond our control. Therefore, we may not generate significant revenue from the sale of such products, even if approved. Any delay or setback we face in the commercialization of LIQ861 or LIQ865 may have a material and adverse effect on our business and prospects, which will adversely affect your investment in our company.

We are a clinical-stage biopharmaceutical company with no approved products and no historical product revenue, which may make it difficult for you to evaluate our business, financial condition and prospects.

We are a clinical-stage biopharmaceutical company with no history of commercial operations upon which you can evaluate our prospects. Drug product development involves a substantial degree of uncertainty. Our operations to date have been limited to developing our PRINT technology, undertaking preclinical studies and clinical trials for our product candidates and collaborating with leading pharmaceutical companies, including GlaxoSmithKline plc and/or its subsidiaries, collectively, GSK, to expand the applications for our PRINT technology through licensing as well as joint product development arrangements. We have not obtained marketing approval for any of our product candidates and, accordingly, have not demonstrated an ability to generate revenue from pharmaceutical products or successfully overcome the risks and uncertainties frequently encountered by companies undertaking drug product development. Consequently, your ability to assess our business, financial condition and prospects may be significantly limited. Further, the net losses that we incur may fluctuate significantly from quarter-to-quarter and year-to-year, such that a period-to-period comparison of our results of operations may not be a good indication of our future performance. Other unanticipated costs may also arise.

Our net losses and significant cash used in operating activities have raised substantial doubt regarding our ability to continue as a going concern.

Our financial statements as of and for the year ended December 31, 2017 include a statement that our recurring losses and cash outflows from operations, our accumulated deficit and our debt maturing within twelve months raise substantial doubt about our ability to continue as a going concern. If we are unable to obtain sufficient funding, our business, prospects, financial condition and results of operations will be materially and adversely affected, and we may be unable to continue as a going concern. If we are unable to continue as a going concern, we may have to liquidate our assets and may receive less than the value at which those assets are carried on our audited financial statements, and it is likely that investors will lose all or a part of their investment. Our ability to continue as a going concern could also materially limit our ability to raise additional funds through the issuance of new debt or equity securities or generate revenues from licensing and collaboration arrangements. After this offering, future financial statements may also include statements expressing substantial doubt about our ability to continue as a going concern. If we seek additional financing to fund our business activities in the future and there remains substantial doubt about our ability to continue as a going concern, investors or other financing sources may be unwilling to provide additional funding to us on commercially reasonable terms or at all.

Even if this offering is successful, we expect that we will need further financing for our existing business and future growth, which may not be available on acceptable terms, if at all. Failure to obtain funding on acceptable terms and on a timely basis may require us to curtail, delay or discontinue our product development efforts or other operations. The failure to obtain further financing may also prevent us from capitalizing on other potential product candidates or indications which may be more profitable than LIQ861 and LIQ865 or for which there may be a greater likelihood of success.

We anticipate that we will need to raise additional funds to meet our future funding requirements.

In the event that funds generated from our operations are insufficient to fund our future growth, we may raise additional funds through an issuance of equity or debt securities or by borrowing from banks or other financial institutions. We cannot assure you that we will be able to obtain such additional financing on terms that are acceptable to us, or at all. Global and local economic conditions could negatively affect our ability to raise funds. To the extent that we raise additional capital through the sale of equity or convertible debt securities, your ownership interest will be diluted, and the terms of such securities may include liquidation or other preferences that adversely affect your rights as a stockholder. Such financing, even if obtained, may be accompanied by restrictive covenants that may, among others, limit our ability to pay dividends or require us to seek consent for payment of dividends, or restrict our freedom to operate our business by requiring consent for certain actions.

If we fail to obtain additional financing on terms that are acceptable to us, we will not be able to implement our growth plans, and we may be required to significantly curtail, delay or discontinue one or more of our research, development or manufacturing programs or the commercialization of any approved product. Furthermore, if we fail to obtain additional financing on terms that are acceptable to us, we may forgo or delay the pursuit of opportunities presented by other potential product candidates or indications that may later prove to have greater commercial potential than the product candidates and indications that we have chosen to pursue.

We depend on GSK for a significant portion of our near-term revenue.

We are party to a licensing agreement with GSK pursuant to which GSK has exercised an option to exclusively license our PRINT technology for applications in certain inhaled therapies, or the GSK ICO Agreement. We previously entered into a separate licensing agreement with GSK relating to the field of vaccines, or the GSK VCO Agreement. For the years ended December 31, 2016 and 2017, our revenue attributable to our collaboration and licensing arrangements with GSK, which included a combination of billings for particle formulations, manufacturing, milestone payments and amortization of deferred revenue from up-front fees, accounted for 90% and 84%, respectively, of our total revenue. For the three months ended March 31, 2017 and 2018, our revenue attributable to our collaboration and licensing arrangements with GSK accounted for 92% and 47%, respectively, of our total revenue.

Any changes in GSK's plans with respect to the GSK ICO Agreement may materially and adversely affect our results of operations and prospects. For example, in December 2017, GSK informed us of its modified plans under the GSK ICO Agreement that reduced its requirements and budget for our research and development support in 2018. Revenues from research and development services under the GSK ICO Agreement were $3.1 million and $0.2 million for the year ended December 31, 2017 and the three months ended March 31, 2018, respectively. We expect that such revenues will be less than $250,000 during 2018 as a result of GSK's modified plans. In response, in January 2018 we reduced our research and development workforce accordingly, and we anticipate that we will incur approximately $400,000 in expense relating to the modification. As we have not commenced commercialization of our product candidates, we expect that in the near future, we will continue to derive a significant portion of our revenue from our collaboration and licensing arrangements with GSK. If GSK exercises its right to terminate the GSK ICO Agreement in its entirety or in respect of a particular product, and if we are not able to generate

comparable revenue from our other existing or future collaboration and licensing arrangements, our results of operations and prospects could be materially and adversely affected.

Our credit facility with Pacific Western Bank, or PWB, contains operating and financial covenants that restrict our business and financing activities, and is subject to acceleration in specified circumstances, which may result in PWB taking possession and disposing of any collateral.

Our credit facility contains restrictions that limit our flexibility in operating our business. Under the terms of the loan and security agreement, or LSA, with PWB, pursuant to which PWB extended a $10.0 million term loan facility to us, we may not, among other things, without the prior written consent of PWB, (a) pay any dividends or make any other distribution or payment on account of or in redemption, retirement or purchase of any capital stock except in certain prescribed circumstances, (b) create, incur, assume, guarantee or be or remain liable with respect to any indebtedness except certain permitted indebtedness or prepay any indebtedness, (c) replace or suffer the departure of our Chief Executive Officer or Chief Financial Officer without delivering written notification to PWB within 10 days of such change or (d) suffer a change on our board of directors, or the Board, which results in the failure of at least one partner of either New Enterprise Associates or Canaan Partners or their respective affiliates to serve as a voting member. Our facility with PWB is secured by all of our assets excluding our intellectual property, on which we have granted a negative pledge.

We have, in the past, breached multiple covenants in our LSA related to cash levels, reporting requirements and required periodic deliverables to PWB, but have obtained waivers from PWB in relation to all such breaches. If we breach certain of our debt covenants and are unable to cure such breach within the prescribed period or are not granted waivers in relation to such breach, it may constitute an event of default under our facility agreements, giving lenders the right to require us to repay the then outstanding debt immediately, and the lenders could, among other things, foreclose on the collateral granted to them to collateralize such indebtedness, which excludes our intellectual property, if we are unable to pay the outstanding debt immediately. A breach of covenants and the acceleration of our repayment obligations by PWB could have a material adverse effect on our business, financial condition, results of operations and prospects.

We face significant competition from large pharmaceutical companies, among others, and our operating results will suffer if we are unable to compete effectively.

We face significant competition from industry players worldwide, including large multi-national pharmaceutical companies, other emerging or smaller pharmaceutical companies, as well as universities and other research institutions.

Many of our competitors have substantially greater financial, technical and other resources, such as a larger research and development staff, and more experience in manufacturing and marketing, than we do. As a result, these companies may obtain marketing approval for their product candidates more quickly than we are able to and be more successful in commercializing their products than us. Smaller or early-stage companies may also prove to be significant competitors, particularly through collaboration arrangements that they enter into with large, established companies. We may also face competition as a result of advances in the commercial applicability of new technologies and greater availability of capital for investment in such technologies. Our competitors may also invest heavily in the discovery and development of novel drug products that could make our product candidates less competitive or may file FDA citizen petitions which may delay the approval process for our product candidates.

Furthermore, our competitors may succeed in developing, acquiring or licensing, on an exclusive basis, pharmaceutical products that are easier to develop, more effective or less costly than any product candidates that we are currently developing or that we may develop. Our competitors may also succeed in developing blocking patents to which we do not have a license.

Any new drug product that competes with a prior approved drug product must demonstrate advantages in safety, efficacy, tolerability or convenience in order to overcome price competition and to be commercially successful. Our approved products are expected to face competition from drug products that are already on the market, as well as those in our competitors' development pipelines. In particular, we expect that LIQ861 will face competition from Tyvaso®, and Ventavis®, which are existing drug products indicated for the treatment of PAH, potential new entrants such as Insmed Inc.'s INS-1009, as well as generic equivalents of Tyvaso following the expiry of Tyvaso's patent in 2018. We are aware that MannKind Corporation has recently filed an Investigational New Drug application, or IND, and initiated a Phase 1 trial evaluating an inhaled dry powder treprostinil product for the treatment of PAH. We expect LIQ865 to face competition from EXPAREL®, an existing injectable version of bupivacaine. The early success of EXPAREL may make it difficult for us to convince physicians, patients and other members of the medical community to accept and use LIQ865 over EXPAREL. In addition, while EXPAREL is currently the only direct competitor to LIQ865 on the market, Durect Corporation, Innocoll Holdings plc and Heron Therapeutics, Inc. each have products in the pipeline that are potential competitors to LIQ865, which are estimated to enter the market in 2018 or 2019, and generic equivalents of EXPAREL may enter the market following the expiry of EXPAREL's patent in 2018. If we are unable to maintain our competitive position, our business and prospects will be materially and adversely affected. See "Business — Competition" for further details.

The pharmaceutical industry is subject to rapid technological change, which could affect the commercial viability of our products.

The pharmaceutical industry is subject to rapid and significant technological change. Research, discoveries or inventions by others may result in medical insights or breakthroughs which render our products less competitive or even obsolete. Furthermore, there may be breakthroughs of new pharmaceutical technologies which may become superior to our PRINT technology that may result in the loss of our commercial advantage. Our future success will, in part, depend on our ability to, among others:

- develop or license new technologies that address the changing needs of the medical community; and
- respond to technological advances and changing industry standards and practices in a cost-effective and timely manner.

Developing technology entails significant technical and business risks and substantial costs. We cannot assure you that we will be able to utilize new technologies effectively or that we will be able to adapt our existing technologies to changing industry standards in a timely or cost-effective manner, or at all. If we are unable to keep up with advancements in technology, our competitive position may suffer and our business and prospects may be materially and adversely affected.

Risks Related to our Business Operations

If we are unable to establish licensing and collaboration arrangements with other pharmaceutical companies on acceptable terms, or at all, we may not be able to develop and commercialize additional product candidates using our PRINT technology.

We have collaborated, and will continue to collaborate, with, among others, pharmaceutical companies such as GSK to expand the applications for our PRINT technology through licensing as well as joint product development arrangements. In addition, if we are able to obtain marketing approval for our product candidates from non-U.S. regulatory authorities, we intend to enter into strategic relationships with international collaborators for the commercialization of such products outside of the United States.

Collaboration and licensing arrangements are complex and time-consuming to negotiate, document, implement and maintain. We may not be successful in our efforts to establish collaboration or other alternative arrangements should we so choose to enter into such arrangements. In addition, the terms of any collaboration or other arrangements that we may enter into may not be favorable to us or may restrict our

ability to enter into further collaboration or other arrangements with others. For example, collaboration agreements may contain exclusivity arrangements which limit our ability to work with other pharmaceutical companies to expand the applications for our PRINT technology, as in the case of our exclusivity arrangements with GSK.

If we are unable to establish licensing and collaboration arrangements or the terms of such agreements we enter into are unfavorable to us or restrict our ability to work with other pharmaceutical companies, we may not be able to expand the applications for our PRINT technology or commercialize our approved products, and our business and prospects may be materially and adversely affected.

Our collaboration and licensing arrangements may not be successful.

Our collaboration and licensing arrangements, as well as any future collaboration and licensing arrangements that we may enter into, may not be successful. The success of our collaboration and licensing arrangements will depend heavily on the efforts and activities of our collaborators, which are not within our control. We may, in the course of our collaboration and licensing arrangements, be subject to numerous risks, including, but not limited to, the following:

- our collaborators, including GSK, may have significant discretion in determining the efforts and resources that they will contribute;
- our collaborators, including GSK, may delay clinical trials, provide insufficient funding for a clinical trial program, stop a clinical trial, abandon a product candidate, repeat or conduct new clinical trials or require a new formulation of a product candidate for clinical testing;
- our collaborators may independently, or in conjunction with others, develop products that compete directly or indirectly with our product candidates;
- we may grant exclusive rights to our collaborators that would restrict us from collaborating with others;
- our collaborators may not properly maintain or defend our intellectual property rights or may use our intellectual property or proprietary information in a way that gives rise to actual or threatened litigation that could jeopardize or invalidate our intellectual property or proprietary information or expose us to potential liability;
- disputes may arise between us and our collaborators, which may cause a delay in or the termination of our research, development or commercialization activities;
- our collaboration and licensing arrangements may be terminated (for example, our development and licensing agreement with G&W Laboratories, Inc., which we mutually terminated in April 2018), and if terminated, may result in our need for additional capital to pursue further drug product development or commercialization;
- our collaborators may own or co-own certain intellectual property arising from our collaboration and licensing arrangements with them, which may restrict our ability to develop or commercialize such intellectual property; and
- our collaborators may alter the strategic direction of their business or may undergo a change of control or management, which may affect the success of our collaboration arrangements with them.

We depend on third parties for clinical and commercial supplies, including a single supplier for the active ingredient of LIQ861.

We depend on third-party suppliers for clinical and commercial supplies, including the active pharmaceutical ingredients which are used in our product candidates. These supplies may not always be available to us at the standards we require or on terms acceptable to us, or at all, and we may not be able to locate alternative suppliers in a timely manner, or at all. If we are unable to obtain necessary clinical or commercial supplies, our manufacturing operations and clinical trials and the clinical trials of our

collaborators may be delayed or disrupted and our business and prospects may be materially and adversely affected as a result.

For example, we currently rely on a sole supplier, LGM Pharma, LLC, or LGM Pharma, for treprostinil, the active pharmaceutical ingredient of LIQ861. If LGM Pharma is unable to supply treprostinil to us in the quantities we require, or at all, or otherwise defaults on its supply obligations to us, or if it ceases its relationship with us, we may not be able to obtain alternative supplies of treprostinil from other suppliers on acceptable terms, in a timely manner, or at all. Furthermore, LIQ861 is administered using RS00 Model 8 DPI, a DPI manufactured by Plastiape S.p.A. We purchase treprostinil and our DPI supply pursuant to purchase orders and do not have long-term contracts with either supplier. In the event of any prolonged disruption to our supply of treprostinil or the manufacture and supply of RS00 Model 8 DPI, our ability to develop and commercialize, and the timeline for commercialization of, LIQ861 may be adversely affected.

Our operations are concentrated in Morrisville, North Carolina and interruptions due to natural disasters or other unforeseen events could materially and adversely affect our operations.

All of our current operations are concentrated in Morrisville, North Carolina. A fire, flood, hurricane, earthquake or other disaster or unforeseen event resulting in significant damage to our facilities could significantly disrupt or curtail or require us to cease our operations.

It would be difficult, costly and time-consuming to transfer resources from one facility to another or to repair or replace our facility in the event that it is significantly damaged. In addition, our insurance may not be sufficient to cover all of our losses and may not continue to be available to us on acceptable terms, or at all.

In addition, if one of our suppliers experiences a similar disaster or unforeseen event, we could face significant delays in obtaining our supplies or be required to source for supplies from an alternative supplier and may incur substantial costs as a result. Any significant uninsured loss, prolonged or repeated disruption to operations or inability to operate, experienced by us or by our suppliers could materially and adversely affect our business, financial condition and results of operations.

If we fail to comply with environmental, health and safety laws and regulations, we could become subject to fines or penalties or incur costs that could have a material adverse effect on our business.

We are subject to numerous environmental, health and safety laws and regulations, including those governing laboratory procedures and the handling, use, storage, treatment and disposal of hazardous materials and wastes. From time to time and in the future, our operations may involve the use of hazardous and flammable materials, including chemicals and biological materials, and may also produce hazardous waste products. Even if we contract with third parties for the disposal of these materials and waste products, we cannot completely eliminate the risk of contamination or injury resulting from these materials. In the event of contamination or injury resulting from the use or disposal of our hazardous materials, we could be held liable for any resulting damages, and any liability could exceed our resources. We also could incur significant costs associated with civil or criminal fines and penalties for failure to comply with such laws and regulations.

We maintain workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our employees resulting from the use of hazardous materials, but this insurance may not provide adequate coverage against potential liabilities. However, we do not maintain insurance for environmental liability or toxic tort claims that may be asserted against us.

In addition, we may incur substantial costs in order to comply with current or future environmental, health and safety laws and regulations. Current or future environmental laws and regulations may impair our research, development or production efforts. In addition, failure to comply with these laws and regulations may result in substantial fines, penalties or other sanctions.

We may be exposed to claims and may not be able to obtain or maintain adequate product liability insurance.

Our business is exposed to the risk of product liability and other liability risks that are inherent in the development, manufacture, clinical testing and marketing of pharmaceutical products. These risks exist even if a product is approved for commercial sale by the FDA or comparable regulatory authorities in other countries and manufactured in licensed facilities. Our current product candidates, LIQ861 and LIQ865, are designed to affect important bodily functions and processes. Any side effects, manufacturing defects, misuse or abuse associated with our products could result in injury to a patient or even death.

Claims that are successfully brought against us could have a material and adverse effect on our financial condition and results of operations. Further, even if we are successful in defending claims brought against us, our reputation could suffer. Regardless of merit or eventual outcome, product liability claims may also result in, among others:

- a decreased demand for our products;
- a withdrawal or recall of our products from the market;
- a withdrawal of participants from our ongoing clinical trials;
- the distraction of our management's attention from our core business activities to defend such claims;
- additional costs to us; and
- a loss of revenue.

Our insurance may not provide adequate coverage against our potential liabilities. Furthermore, we, our collaborators or our licensees may not be able to obtain or maintain insurance on acceptable terms, or at all. In addition, our collaborators or licensees may not be willing to indemnify us against these types of liabilities and may not themselves be sufficiently insured or have sufficient assets to satisfy any product liability claims. To the extent that they are uninsured or uninsurable, claims or losses that may be suffered by us, our collaborators or our licensees may have a material and adverse effect on our financial condition and results of operations.

We depend on skilled labor, and our business and prospects may be adversely affected if we lose the services of our skilled personnel, including those in senior management, or are unable to attract new skilled personnel.

Our ability to continue our operations and manage our potential future growth depends on our ability to hire and retain suitably skilled and qualified employees, including those in senior management, in the long term. Due to the specialized nature of our work, there is a limited supply of suitable candidates. We compete with other biotechnology and pharmaceutical companies, educational and research institutions and government entities, among others, for research, technical and clinical personnel. In addition, in order to manage our potential future growth effectively, we will need to improve our financial controls and systems and, as necessary, recruit sales, marketing, managerial and finance personnel. If we are unable to attract and retain skilled personnel, including those in senior management, including Neal Fowler, our Chief Executive Officer, and Kevin Gordon, our President and Chief Financial Officer, our business and prospects may be materially and adversely affected.

Our employees and our independent contractors, principal investigators, contract research organizations, or CROs, consultants or commercial collaborators, as well as their respective sub-contractors, if any, may engage in misconduct or fail to comply with certain regulatory standards and requirements, which could expose us to liability and adversely affect our reputation.

Our employees and our independent contractors, principal investigators, CROs, consultants or commercial collaborators, as well as their respective sub-contractors, if any, may engage in fraudulent conduct or other illegal activity, which may include intentional, reckless or negligent conduct that violates, among others,

(a) FDA laws and regulations, or those of comparable regulatory authorities in other countries, including those laws that require the reporting of true, complete and accurate information to the FDA, (b) manufacturing standards, (c) healthcare fraud and abuse laws or (d) laws that require the true, complete and accurate reporting of financial information or data. For example, such persons may improperly use or misrepresent information obtained in the course of our clinical trials, create fraudulent data in our preclinical studies or clinical trials or misappropriate our drug products, which could result in regulatory sanctions being imposed on us and cause serious harm to our reputation. It is not always possible for us to identify or deter misconduct by our employees and third parties, and any precautions we may take to detect or prevent such misconduct may not be effective. Any misconduct or failure by our employees and our independent contractors, principal investigators, CROs, consultants or commercial collaborators, as well as their respective sub-contractors, if any, to comply with the applicable laws or regulations may expose us to governmental investigations, other regulatory action or lawsuits. If any action is instituted against us as a result of the alleged misconduct of our employees or other third parties, regardless of the final outcome, our reputation may be adversely affected and our business may suffer as a result. If we are unsuccessful in defending against any such action, we may also be liable to significant fines or other sanctions, which could have a material and adverse effect on us.

We may acquire businesses, products or product candidates, or form strategic alliances or create joint ventures, in the future, and we may not realize the benefits of such transactions.

We may acquire additional businesses, products or product candidates, form strategic alliances or create joint ventures with third parties that we believe will complement or augment our existing business, although we have no current agreements, commitments or understandings to do so. If we acquire businesses with promising markets or technologies, we may not be able to realize the benefit of acquiring such businesses if we are unable to successfully integrate them with our existing operations and company culture. We may encounter numerous difficulties in developing, manufacturing and marketing any new products or product candidates resulting from a strategic alliance or acquisition that delay or prevent us from realizing their expected benefits or enhancing our business. We cannot assure you that, following any such acquisition, strategic alliance or joint venture, we will achieve the expected synergies to justify the transaction.

System failures may disrupt our business operations and delay our product development programs and commercialization activities.

Our systems, including computer systems, and those of our collaborators, contractors and consultants are vulnerable to, among others, unauthorized access, equipment failure and damage from computer viruses as well as cyber hackers. In the event of a material system failure or security breach of, or significant damage to, our systems, our business operations may be disrupted, and our product development programs and commercialization activities may be delayed. For example, failure of or damage to equipment leading to a loss of our clinical trial data could result in delays to the process of obtaining marketing approval for our product candidates, as well as significant and unexpected expenditure to recover or reproduce the lost data. To the extent that any disruption or damage to or security breach of the systems of our collaborators, contractors or consultants results in a loss of our data or applications, or the disclosure of our confidential information, our business may be adversely affected.

Risks Related to the Development and Commercialization of our Product Candidates

The marketing approval processes of the FDA and comparable regulatory authorities in other countries are unpredictable and our product candidates may be subject to multiple rounds of review or may not receive marketing approval.

We have not previously submitted an NDA to the FDA or similar drug approval filings to comparable regulatory authorities in other countries for any product candidate, and we cannot assure you that any of our product candidates will receive marketing approval.

Filing an application and obtaining marketing approval for a pharmaceutical product candidate is an extensive, lengthy, expensive and inherently uncertain process, and regulatory authorities may delay, limit or deny approval of our product candidates for many reasons, including, but not limited to, the following:

- the FDA or comparable regulatory authorities in other countries may refuse to file an NDA or similar drug approval filing if they deem the application to be incomplete;
- the FDA or comparable regulatory authorities in other countries may disagree with the design, scope or implementation of our clinical trials;
- we may be unable to demonstrate to the satisfaction of the FDA or comparable regulatory authorities in other countries that our product candidate is safe and effective for its proposed indication, or that its clinical and other benefits outweigh its safety risks;
- the results of our clinical trials may not meet the level of statistical significance required by the FDA or comparable regulatory authorities in other countries;
- the FDA or comparable regulatory authorities in other countries may disagree with the number, design, size, conduct or statistical analysis of one or more of our clinical trials;
- the FDA or comparable regulatory authorities in other countries may disagree with our interpretation of data from our preclinical studies or clinical trials;
- the data collected from our clinical trials may not be sufficient to support the submission of an NDA or similar drug approval filing to the FDA or comparable regulatory authorities in other countries;
- the FDA or comparable regulatory authorities in other countries may not approve of our manufacturing processes or facilities or those of our third-party manufacturers, which would be required to be corrected prior to marketing approval;
- the FDA or comparable regulatory authorities in other countries may require development of a costly and extensive risk evaluation and mitigation strategy, or REMS, as a condition of approval;
- the success or further approval of competing products approved in indications similar to those of our product candidates may change the standards for approval of our product candidates in their proposed indications; and
- the approval policies of the FDA or comparable regulatory authorities in other countries may change in a manner that renders our clinical data insufficient for approval.

In addition, the FDA or comparable regulatory authorities in other countries may, in their sole discretion, change their views in respect of regulatory pathways they had previously affirmed or clinical trial protocols they were previously not opposed to. While we have consulted with the FDA on the appropriate regulatory pathway and clinical trial protocols for our product candidates, LIQ861 and LIQ865, we cannot assure you that the FDA will not revise their position significantly at a later date. In the event that this occurs, the clinical development and commercialization of our product candidates may be delayed or even derailed.

Even if we obtain marketing approval, the FDA or comparable regulatory authorities in other countries may approve our product candidates for fewer or more limited indications than what we requested approval for, or may include safety warnings or other restrictions that may negatively impact the commercial viability of our product candidates. Likewise, regulatory authorities may grant approval contingent on the performance of costly post-marketing clinical trials or the conduct of an expensive REMS, which could significantly reduce the potential for commercial success or viability of our product candidates. We also may not be able to find acceptable collaborators to manufacture our approved drug products in commercial quantities and at acceptable prices, or at all.

We may be unable to continually develop a pipeline of product candidates, which could affect our business and prospects.

A key element of our long-term strategy is to continually develop a pipeline of product candidates by developing proprietary innovations to FDA-approved drug products using our PRINT technology. If we are unable to identify off-patent drug products that we can develop proprietary innovations using our PRINT

technology or otherwise expand our product candidate pipeline, whether through licensed or co-development opportunities, and obtain marketing approval for such product candidates within the timeframes that we anticipate, or at all, our business and prospects may be materially and adversely affected.

Our preclinical studies and clinical trials may not be successful and delays to such preclinical studies or clinical trials may cause our costs to increase and significantly impair our ability to commercialize our product candidates. Results of previous clinical trials or interim results of ongoing clinical trials may not be predictive of future results.

Before we are able to commercialize our drug products, we are required to undertake extensive preclinical studies and clinical trials to demonstrate that our drug products are safe and effective for their intended uses. However, we cannot assure you that our drug products will, in preclinical studies and clinical trials, demonstrate the safety and efficacy traits necessary to obtain marketing approval. Due to the nature of drug product development, many product candidates, especially those in early stages of development, may be terminated during development. We have not successfully completed the clinical development of any of our product candidates and, accordingly, do not have a track record of successfully bringing product candidates to market. Furthermore, LIQ861 and LIQ865 have, to date, been tested only in relatively small study populations and, accordingly, the results from our earlier clinical trials may be less reliable than results achieved in larger clinical trials. Additionally, the outcome of preclinical testing and early clinical trials may not be predictive of the success of later clinical trials, and preliminary and interim results of a clinical trial do not necessarily predict final results.

Preclinical studies and clinical trials may fail due to factors such as flaws in trial design, dose selection and patient enrollment criteria. The results of preclinical studies and early clinical trials may not be indicative of the results of subsequent clinical trials. Product candidates may, in later stages of clinical testing, fail to show the desired safety and efficacy traits despite having progressed through preclinical studies and earlier clinical trials. Moreover, there may be significant variability in safety or efficacy results between different trials of the same product candidate due to factors including, but not limited to, changes in trial protocols, differences in the composition of the patient population, adherence to the dosing regimen and other trial protocols and the rate of drop-out among patients in a clinical trial. If our preclinical studies or clinical trials are not successful and we are unable to bring our product candidates to market as a result, our business and prospects may be materially and adversely affected.

Furthermore, conducting preclinical studies and clinical trials is a costly and time-consuming process. The length of time required to conduct the required studies and trials may vary substantially according to the type, complexity, novelty and intended use of the product candidate. A single clinical trial may take up to several years to complete. Moreover, our preclinical studies and clinical trials may be delayed or halted due to various factors, including, among others:

- delays in raising the funding necessary to initiate or continue a clinical trial;
- delays in manufacturing sufficient quantities of product candidates for clinical trials;
- delays in reaching agreement on acceptable terms with prospective contract research organizations and clinical trial sites;
- delays in obtaining institutional review board approval at clinical trial sites;
- delays in recruiting suitable patients to participate in a clinical trial;
- delays in patients' completion of clinical trials or their post-treatment follow up;
- regulatory authorities' interpretation of our preclinical and clinical data; and
- unforeseen safety issues, including a high and unacceptable severity, or prevalence, of undesirable side effects or adverse events caused by our product candidates or similar drug products or product candidates.

If our preclinical studies or clinical trials are delayed, the commercialization of our product candidates will be delayed and as a result, we may incur substantial additional costs or not be able to recoup our investment in the development of our product candidates, which would have a material and adverse effect on our business.

We are planning to pursue the FDA 505(b)(2) pathway for all of our current product candidates. If we are unable to rely on the 505(b)(2) regulatory pathway to apply for marketing approval of our product candidates in the United States, seeking approval of these product candidates through the 505(b)(1) new drug application, or NDA, pathway would require full reports of investigations of safety and effectiveness, and the process of obtaining marketing approval for our product candidates would likely be significantly longer and more costly.

Our business model is to develop our own drug products in addition to collaborating with, among others, pharmaceutical companies such as GSK to develop drug products. We are currently focused on developing drug products that can be approved under abbreviated regulatory pathways in the United States, such as the 505(b)(2) regulatory pathway, which permits the filing of an NDA where at least some of the information required for approval comes from studies that were not conducted by or for the applicant and for which the applicant has not obtained a right of reference. Section 505(b)(2), if applicable to us, would allow an NDA we submit to the FDA to rely in part on data in the public domain or the FDA's prior conclusions regarding the safety and effectiveness of approved compounds, which could expedite the development program for a product candidate by potentially decreasing the amount of clinical data that we would need to generate in order to obtain FDA approval. We plan to pursue this pathway for our current product candidates. Even if the FDA allows us to rely on the 505(b)(2) regulatory pathway, we cannot assure you that such marketing approval will be obtained in a timely manner, or at all.

The FDA may require us to perform additional clinical trials to support any change from the reference listed drug, which could be time-consuming and substantially delay our receipt of marketing approval. Also, as has been the experience of others in our industry, our competitors may file citizens' petitions with the FDA to contest approval of our NDA, which may delay or even prevent the FDA from approving any NDA that we submit under the 505(b)(2) regulatory pathway. If an FDA decision or action relative to our product candidate, or the FDA's interpretation of Section 505(b)(2) more generally, is successfully challenged, it could result in delays or even prevent the FDA from approving a 505(b)(2) application for our product candidates. Even if we are able to utilize the 505(b)(2) regulatory pathway, a drug approved via this pathway may be subject to the same post-approval limitations, conditions and requirements as any other drug.

In addition, we may face patent infringement lawsuits in relation to our NDAs submitted under the 505(b)(2) regulatory pathway, which may further delay or prevent the review or approval of our product candidates. The pharmaceutical industry is highly competitive, and 505(b)(2) NDAs are subject to special requirements designed to protect the patent rights of sponsors of previously approved drugs that are referenced in a 505(b)(2) NDA. A claim by the applicant that a patent is invalid or will not be infringed is subject to challenge by the patent holder, requirements may give rise to patent litigation and mandatory 30-month delays in approval of a 505(b)(2) application. It is not uncommon for a manufacturer of an approved product to file a citizen petition with the FDA seeking to delay approval of, or impose additional approval requirements for, pending competing products. If successful, such petitions can significantly delay, or even prevent, the approval of the new product. However, even if the FDA ultimately denies such a petition, the FDA may substantially delay approval while it considers and responds to the petition.

If the FDA determines that our product candidates do not qualify for the 505(b)(2) regulatory pathway, we would need to reconsider our plans and might not be able to commercialize our product candidates in a cost-efficient manner, or at all. If we were to pursue approval under the 505(b)(1) NDA pathway, we would be subject to more extensive requirements and risks such as conducting additional clinical trials, providing additional data and information or meeting additional standards for marketing approval. As a result, the

time and financial resources required to obtain marketing approval for our product candidates would likely increase substantially and further complications and risks associated with our product candidates may arise. Also, new competing products may reach the market faster than ours, which may materially and adversely affect our competitive position, business and prospects.

Product candidates that the FDA deems to be combination products, such as LIQ861, or that otherwise rely on innovative drug delivery systems, may face additional challenges, risks and delays in the product development and regulatory approval process.

The FDA has indicated that it considers LIQ861, which is delivered by a DPI, to be a drug-device combination product and, accordingly, the DPI will be evaluated as part of our NDA filing. When evaluating products that utilize a specific drug delivery system or device, the FDA will evaluate the characteristics of that delivery system and its functionality, as well as the potential for undesirable interactions between the drug and the delivery system, including the potential to negatively impact the safety or effectiveness of the drug. The FDA review process can be more complicated for combination products, and may result in delays, particularly if novel delivery systems are involved. We rely on third parties for the design and manufacture of the delivery systems for our products, including the DPI for LIQ861, and in some cases for the right to refer to their data on file with the FDA or other regulators. Quality or design concerns with the delivery system, or commercial disputes with these third parties, could delay or prevent regulatory approval and commercialization of our product candidates.

Our product candidates are based on our proprietary, novel technology, PRINT, which makes it difficult to predict the time and cost of development and of subsequently obtaining regulatory approval.

Our future success depends on the successful development of our PRINT technology and products based on it, including LIQ861 and, to a lesser degree, LIQ865. To our knowledge, no regulatory authority has granted approval to any person or entity, including us, to market and commercialize drugs using our novel delivery system. We may never receive approval to market and commercialize any product candidate that uses PRINT.

We may encounter difficulties in enrolling patients in our clinical trials.

We may not be able to commence or complete clinical trials for our product candidates if we are unable to locate and enroll a sufficient number of eligible patients to participate in these trials.

Patient enrollment may be affected by, among others:

- the severity of the disease under investigation;
- the design of the clinical trial protocol;
- the size and nature of the patient population;
- eligibility criteria for the clinical trial in question;
- the perceived risks and benefits of the product candidate under clinical testing, including a high and unacceptable severity, or prevalence, of undesirable side effects or adverse events caused by our product candidates or similar products or product candidates;
- the existing body of safety and efficacy data in respect of the product candidate under clinical testing;
- the proximity of patients to clinical trial sites; and
- the number and nature of competing therapies and clinical trials.

Any negative results we may report in clinical trials of our product candidates may also make it difficult or impossible to recruit and retain patients in other clinical trials of that same product candidate.

In particular, we will be required to identify and enroll a sufficient number of patients with PAH for the Phase 3 clinical trial of LIQ861. PAH is a rare disease with a relatively small patient population, and our

enrollment of clinical trial participants may be slow as a result. Furthermore, we are aware of a number of therapies for PAH that are being developed or that are already available on the market, and we expect to face competition from these investigational drugs or approval drugs for potential subjects in our clinical trials, which may delay enrollment in our planned clinical trials.

Delays or failures in planned patient enrollment or retention may result in increased costs, program delays, or both. We may, as a result of such delays or failures, be unable to carry out our clinical trials as planned or within the timeframe that we expect or at all, and our business and prospects may be materially and adversely affected as a result.

If a competitor obtains orphan drug designation from the FDA for the same drug and same indication as we are seeking for a product candidate, and then obtains approval of that drug for that condition before we do, the resulting FDA exclusivity would significantly delay our ability to commercialize that product candidate.

Under the Orphan Drug Act, the FDA may grant orphan drug designation to drugs intended to treat a rare disease or condition—generally a disease or condition that affects fewer than 200,000 individuals in the United States or that affects more than 200,000 individuals in the United States and for which there is no reasonable expectation that costs of research and development of the drug for the indication can be recovered by sales of the drug in the United States. Orphan drug designation must be requested before submitting an NDA.

After the FDA grants orphan drug designation, the generic identity of the drug and its potential orphan use are disclosed publicly by the FDA. Orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review and approval process. The first applicant to receive FDA approval for a particular active ingredient to treat a particular disease or condition with orphan drug designation is entitled to a seven-year exclusive marketing period in the United States for that product in that indication. Among the other benefits of orphan drug designation are tax credits for certain research and a waiver of the NDA application user fee.

During the exclusivity period, the FDA may not approve any other applications to market the same drug for the same disease or condition, except in limited circumstances, such as if the second applicant demonstrates the clinical superiority of its product to the product with orphan drug exclusivity through a demonstration of superior safety, superior efficacy or a major contribution to patient care, or if the manufacturer of the product with orphan exclusivity is not able to assure sufficient quantities of the product. "Same drug" means a drug that contains the same identity of the active moiety if it is a drug composed of small molecules, or of the principal molecular structural features if it is composed of macromolecules and is intended for the same use as a previously approved drug, except that if the subsequent drug can be shown to be clinically superior to the first drug, it will not be considered to be the same drug. Drug exclusivity does not prevent the FDA from approving a different drug for the same disease or condition, or the same drug for a different disease or condition.

We have conducted, and may in the future conduct, clinical trials for our product candidates outside the United States and the FDA may not accept data from such trials.

Although the FDA may accept data from clinical trials conducted outside the United States in support of safety and efficacy claims for our product candidates, if not conducted under an IND, this is subject to certain conditions set out in 21 C.F.R. § 312.120. For example, in order for the FDA to accept data from such a foreign clinical trial, the study must have been conducted in accordance with Good Clinical Practice, or GCP, including review and approval by an independent ethics committee and obtaining the informed consent from subjects of the clinical trials. The FDA must also be able to validate the data from the study through an onsite inspection if the agency deems it necessary. In addition, foreign clinical data submitted to support FDA applications should be applicable to the U.S. population and U.S. medical practice. Other

factors that may affect the acceptance of foreign clinical data include differences in clinical conditions, study populations or regulatory requirements between the United States and the foreign country.

We conducted the early Phase 1a clinical trial of LIQ865 in Denmark, and not under an IND, and may, in the future, conduct the clinical trials of our product candidates outside the United States. The FDA may not accept such foreign clinical data, and in such event, we may be required to re-conduct the relevant clinical trials within the United States, which would be costly and time-consuming, and which could have a material and adverse effect on our ability to carry out our business plans.

We rely on third parties to conduct our preclinical studies and clinical trials.

We currently rely on, and plan to continue to rely on, third-party CROs to monitor and manage data for our preclinical studies and clinical trials. However, we are responsible for ensuring that each of our trials is conducted in accordance with the applicable regulatory standards and our reliance on CROs does not relieve us of our regulatory responsibilities.

The CROs on which we rely are required to comply with FDA regulations (and the regulations of comparable regulatory authorities in other countries) regarding GCP. Regulatory authorities enforce GCP standards through periodic inspections. If any of the CROs on which we rely fail to comply with the applicable GCP standards, the clinical data generated in our clinical trials may be deemed unreliable. While we have contractual agreements with these CROs, we have limited influence over their actual performance and cannot control whether or not they devote sufficient time and resources to our preclinical studies and clinical trials. A failure to comply with the applicable regulations in the conduct of the preclinical studies and clinical trials for our product candidates may require us to repeat such studies or trials, which would delay the process of obtaining marketing approval for our product candidates and have a material and adverse effect on our business and prospects.

Some of our CROs have the ability to terminate their respective agreements with us if, among others, it can be reasonably demonstrated that the safety of the patients participating in our clinical trials warrants such termination. If any of our agreements with our CROs is terminated, and if we are not able to enter into agreements with alternative CROs on acceptable terms or in a timely manner, or at all, the clinical development of our product candidates may be delayed and our development expenses could be increased.

Our facilities are subject to extensive and ongoing regulatory requirements and failure to comply with these regulations may result in significant liability.

Our company and our facilities are subject to payment of fees, ongoing review and periodic inspections by the FDA and other regulatory authorities for compliance with quality system regulations, including the FDA's current good manufacturing practices, or cGMP, requirements. These regulations cover all aspects of the manufacturing, testing, quality control and record-keeping of our drug products. Furthermore, the facilities where our product candidates are manufactured may be subject to inspection by the FDA before we can obtain marketing approval and remain subject to periodic inspection even after our product candidates have received marketing approval. Suppliers of components and materials such as active pharmaceutical ingredients, used to manufacture our drug products are also required to comply with the applicable regulatory standards.

The manufacture of pharmaceutical products is complex and requires significant expertise and capital investment, including the development of advanced manufacturing techniques and process controls. We and any contract manufacturers that we may engage in the future must comply with cGMP requirements. Manufacturers of pharmaceutical products often encounter difficulties in production, particularly in scaling up and validating initial production and contamination controls. These problems include difficulties with production costs and yields, quality control, including stability of the product, quality assurance testing, operator error, shortages of qualified personnel, as well as compliance with strictly enforced federal, state and foreign regulations. Furthermore, if microbial, viral or other contaminations are discovered in our

product candidates or in the manufacturing facilities in which our product candidates are made, such manufacturing facilities may need to be closed for an extended period of time to investigate and remedy the contamination.

Compliance with these regulatory standards often requires significant expense and effort. If we or our suppliers are unable to comply with the applicable regulatory standards or take satisfactory corrective steps in response to adverse results of an inspection, this could result in enforcement action, including, among others, the issue of a public warning letter, a shutdown of or restrictions on our or our suppliers' manufacturing operations, delays in approving our drug products and refusal to permit the import or export of our drug products. Any adverse regulatory action taken against us could subject us to significant liability and harm our business and prospects.

Our current pipeline product candidates, LIQ861 and LIQ865, require extensive clinical data analysis, regulatory review and additional testing. Clinical trials and data analysis can be very expensive, time-consuming and difficult to design and implement. If we are unsuccessful in obtaining regulatory approval for LIQ861 or LIQ865, or any of our product candidates do not provide positive results, we may be required to delay or abandon development of such product, which would have a material adverse impact on our business.

Continuing product development requires additional and extensive clinical testing. Human clinical trials are very expensive and difficult to design and implement, in part because they are subject to rigorous regulatory requirements. The clinical trial process is also time-consuming. We cannot provide any assurance or certainty regarding when we might receive regulatory approval for LIQ861 or LIQ865. Furthermore, failure can occur at any stage of the process, and we could encounter problems that cause us to abandon an NDA filed with the FDA or repeat clinical trials. The commencement and completion of clinical trials for any current or future development product candidate may be delayed by several factors, including:

- unforeseen safety issues;
- determination of dosing issues;
- lack of effectiveness during clinical trials;
- slower than expected rates of patient recruitment;
- inability to monitor patients adequately during or after treatment; and
- inability or unwillingness of medical investigators to follow our clinical protocols.

In addition, the FDA or an independent institutional review board, or IRB, may suspend our clinical trials at any time if it appears that we are exposing participants to unacceptable health risks or if the FDA finds deficiencies in our IND submissions or the conduct of these trials. Therefore, we cannot provide any assurance or predict with certainty the schedule for future clinical trials. In the event we do not ultimately receive regulatory approval for LIQ861 and LIQ865, we may be required to terminate development of our only product candidates.

Our product candidates may cause undesirable side effects or have other properties that could delay or prevent their regulatory approval, limit the commercial potential or result in significant negative consequences following any potential marketing approval.

If our product candidates are associated with undesirable side effects or have characteristics that are unexpected, we may need to abandon our development or limit development to certain uses or subpopulations in which the undesirable side effects or other characteristics are less prevalent, less severe or more acceptable from a risk-benefit perspective. Any serious adverse or undesirable side effects identified during the development of our product candidates, could interrupt, delay or halt clinical trials and could result in the denial of regulatory approval by the FDA or other regulatory authorities for any or all targeted indications, and in turn prevent us from commercializing our product candidates and generating revenues from their sale. In addition, if any of our product candidates receive regulatory approval and we or

others later identify undesirable adverse effects caused by the product, we could face one or more of the following consequences:

- regulatory authorities may require the addition of labeling statements, such as a boxed warning or a contraindication, or other safety labeling changes;
- regulatory authorities may require a REMS;
- regulatory authorities may withdraw their approval of the product;
- regulatory authorities may seize the product;
- we may be required to change the way that the product is administered, or conduct additional clinical trials or we may need to recall the product;
- we may be subject to litigation or product liability claims fines, injunctions or criminal penalties; and
- our reputation may suffer.

Even if we obtain marketing approval for our product candidates in the United States, we or our collaborators may not obtain marketing approval for the same product candidates elsewhere.

We may enter into strategic collaboration arrangements with third parties to commercialize our product candidates outside of the United States. In order to market any product candidate outside of the United States, we or our collaborators will be required to comply with numerous and varying regulatory requirements of other countries regarding safety and efficacy. Clinical trials conducted in one country may not be recognized or accepted by regulatory authorities in other countries, and obtaining marketing approval in one country does not mean that marketing approval will be obtained in any other country. Approval processes vary among countries and additional product testing and validation, or additional administrative review periods, may be required from one country to the next.

Seeking marketing approval in countries other than the United States could be costly and time-consuming, especially if additional preclinical studies or clinical trials are required to be conducted. We currently do not have any product candidates approved for sale in any jurisdiction, including non-U.S. markets, and we do not have the experience in obtaining marketing approval in non-U.S. markets. We currently also have not identified any collaborators to market our products outside of the United States and cannot assure you that such collaborators, even if identified, will be able to successfully obtain marketing approval for our product candidates outside of the United States. If we or our collaborators fail to obtain marketing approval in non-U.S. markets, or if such approval is delayed, our target market may be reduced, and our ability to realize the full market potential of our products will be adversely affected.

The terms of approvals, ongoing regulations and post-marketing restrictions for our products may limit how we manufacture and market our products, which could materially impair our ability to generate revenue.

Once marketing approval has been granted, an approved product and its manufacturer and marketer are subject to ongoing review and extensive regulation. The FDA closely regulates the post-approval marketing and promotion of drugs to ensure drugs are marketed only for the approved indications and in accordance with the provisions of the approved labeling and regulatory requirements. The FDA imposes stringent restrictions on manufacturers' communications regarding off-label use, and if we do not restrict the marketing of our products only to their approved indications, we may be subject to enforcement action for off-label marketing. We and any potential collaborators we may have in the future, must therefore comply with requirements concerning advertising and promotion for any of our products for which we or our collaborators obtain marketing approval. Thus, if either of our current product candidates receive marketing approval, the accompanying label may limit the approved use of our product, which could limit sales of the product.

In addition, manufacturers of approved products and those manufacturers' facilities are required to comply with extensive FDA requirements, such as ensuring that quality control and manufacturing procedures conform to cGMP applicable to drug manufacturers, which include requirements relating to quality control

and quality assurance as well as the corresponding maintenance of records and documentation and reporting requirements. We, any contract manufacturers we may engage in the future, our future collaborators, licensees and their contract manufacturers will also be subject to other regulatory requirements, including submissions of safety and other post-marketing information and reports, registration and listing requirements, requirements regarding the distribution of samples to clinicians, recordkeeping and costly post-marketing studies or clinical trials and surveillance to monitor the safety or efficacy of the product such as the requirement to implement a risk evaluation and mitigation strategy.

Our products may not achieve market acceptance.

Our business model is to develop our own drug products in addition to collaborating with, among others, pharmaceutical companies such as GSK to develop drug products. We are currently focused on developing drug products that can be approved under abbreviated regulatory pathways in the United States, such as the 505(b)(2) regulatory pathway, which allows us to rely on existing knowledge of the safety and efficacy of the relevant reference listed drugs to support our applications for approval in the United States. While we believe that it will be less difficult for us to convince physicians, patients and other members of the medical community to accept and use our drug products as compared to entirely new drugs, our drug products may nonetheless fail to gain sufficient market acceptance by physicians, patients, other healthcare providers and third-party payors. If any of our drug products fail to achieve sufficient market acceptance, we may not be able to generate sufficient revenue to become profitable. The degree of market acceptance of our drug products, if and when they are approved for commercial sale, will depend on a number of factors, including but not limited to:

- the timing of our receipt of marketing approvals, the terms of such approvals and the countries in which such approvals are obtained;
- the safety, efficacy, reliability and ease of administration of our drug products;
- the prevalence and severity of undesirable side effects and adverse events;
- the extent of the limitations or warnings required by the FDA or comparable regulatory authorities in other countries to be contained in the labeling of our drug products;
- the clinical indications for which our drug products are approved;
- the availability and perceived advantages of alternative therapies;
- any publicity related to our drug products or those of our competitors;
- the quality and price of competing drug products;
- our ability to obtain third-party payor coverage and sufficient reimbursement;
- the willingness of patients to pay out of pocket in the absence of third-party payor coverage; and
- the selling efforts and commitment of our commercialization collaborators.

If our approved drug products fail to receive a sufficient level of market acceptance, our ability to generate revenue from sales of our drug products will be limited, and our business and results of operations may be materially and adversely affected.

The commercial success of our drug products depends on the availability and sufficiency of third-party payor coverage and reimbursement.

Patients in the United States and elsewhere generally rely on third-party payors to reimburse part or all of the costs associated with their prescription drugs. Accordingly, market acceptance of our drug products is dependent on the extent to which third-party coverage and reimbursement is available from government health administration authorities (including in connection with government healthcare programs, such as Medicare and Medicaid in the United States), private healthcare insurers and other healthcare funding organizations.

Significant uncertainty exists as to the coverage and reimbursement status of any drug products for which we may obtain regulatory approval. Coverage decisions may not favor new drug products when more established or lower-cost therapeutic alternatives are already available. Even if we obtain coverage for a given drug product, the associated reimbursement rate may not be adequate to cover our costs, including research, development, intellectual property, manufacture, sale and distribution expenses, or may require co-payments that patients find unacceptably high. Patients are unlikely to use our products unless reimbursement is adequate to cover all or a significant portion of the cost of our drug products.

Coverage and reimbursement policies for drug products can differ significantly from payor to payor as there is no uniform policy of coverage and reimbursement for drug products among third-party payors in the United States. There may be significant delays in obtaining coverage and reimbursement as the process of determining coverage and reimbursement is often time-consuming and costly which will require us to provide scientific and clinical support for the use of our products to each payor separately, with no assurance that coverage or adequate reimbursement will be obtained. It is difficult to predict at this time what government authorities and third-party payors will decide with respect to coverage and reimbursement for our drug products.

The market for our product candidates will depend significantly on access to third-party payors' drug formularies, or lists of medications for which third-party payors provide coverage and reimbursement. Competition to be included in such formularies often leads to downward pricing pressures. In particular, third-party payors may refuse to include a particular reference listed drug in their formularies or otherwise restrict patient access to a reference listed drug when a less costly generic equivalent or other alternative is available. In particular, given that several therapeutically similar drug products to LIQ861, including oral and parenteral prostacyclins, are available on the market, managed care organizations may minimize the utilization of a new to market product and accordingly, we expect that LIQ861, if and when it is approved, will operate in a highly cost-constrained environment. Similarly, as there are a number of generic and branded therapeutic alternatives to LIQ865 in the post-operative pain market, there is a significant risk that we may not be placed on the formularies of key institutions and/or receive favorable reimbursement for LIQ865, if and when it is approved.

The U.S. government, state legislatures and foreign governmental entities have shown significant interest in implementing cost containment programs to limit the growth of government-paid healthcare costs, including price controls, restrictions on reimbursement and coverage and requirements for substitution of generic products for branded prescription drugs. Adoption of government controls and measures, and tightening of restrictive policies in jurisdictions with existing controls and measures, could exclude or limit our drugs products from coverage and limit payments for pharmaceuticals.

In addition, we expect that the increased emphasis on managed care and cost containment measures in the United States by third-party payors and government authorities to continue and will place pressure on pharmaceutical pricing and coverage. Coverage policies and third-party reimbursement rates may change at any time. Even if favorable coverage and reimbursement status is attained for one or more drug products for which we receive regulatory approval, less favorable coverage policies and reimbursement rates may be implemented in the future.

If we are unable to obtain and maintain sufficient third-party coverage and adequate reimbursement for our drug products, the commercial success of our drug products may be greatly hindered and our financial condition and results of operations may be materially and adversely affected.

Our products may be subject to reduced prices negotiated by certain group purchasing organizations that could adversely impact our product revenue.

Our customers may organize with each other or with third parties, such as distributors, manufacturers or hospitals, to negotiate prices that are lower than we may have been able to obtain from each of them

individually. In such event, our ability to generate any product revenue, and consequently, our results of operations may be materially and adversely affected.

We may not be able to build our marketing and sales capabilities or enter into agreements with third parties to market and sell our drug products.

In order to market and sell any of our approved drug products, we will be required to build our marketing and sales capabilities. We cannot assure you that we will be successful in doing so or be able to do so in a cost-effective manner. In addition, we may enter into collaboration arrangements with third parties to market our drug products outside of the United States. We may face significant competition for collaborators. In addition, collaboration arrangements may be time-consuming to negotiate and document. We cannot assure you that we will be able to negotiate collaborations for the marketing and sales of our drug products outside of the United States on acceptable terms, or at all. Even if we do enter into such collaborations, we cannot assure you that our collaborators will be successful in commercializing our products. If we or our collaborators are unable to successfully commercialize our drug products whether in the United States or elsewhere, our business and results of operations may be materially and adversely affected.

The off-label use or misuse of our products may harm our image in the marketplace, result in injuries that lead to costly product liability suits, or result in costly investigations and regulatory agency sanctions under certain circumstances if we are deemed to have engaged in the promotion of these uses, any of which could be costly to our business.

We are developing LIQ861 for the treatment of PAH and LIQ865 for the treatment of local post-operative pain. If our product candidates are cleared by the FDA for these specific indications, we may only promote or market our product candidates for their specifically cleared or approved indications. We will train our marketing and sales force against promoting our product candidates for uses outside of the cleared or approved indications for use, known as "off-label uses." We cannot, however, prevent a physician from using our products off-label, when in the physician's independent professional medical judgment he or she deems it appropriate. There may be increased risk of injury to patients if physicians attempt to use our products for these uses for which they are not approved. Furthermore, the use of our products for indications other than those approved by the FDA may not effectively treat such conditions, which could harm our reputation in the marketplace among physicians and patients.

If the FDA determines that our promotional materials or training constitute promotion of an off-label or other improper use, it could request that we modify our training or promotional materials, or subject us to regulatory or enforcement actions, including the issuance of an untitled letter, a warning letter, injunction, seizure, civil fine or criminal penalties. It is also possible that other federal, state or foreign enforcement authorities might take action if they consider our business activities to constitute promotion of an off-label use, which could result in significant penalties, including, but not limited to, criminal, civil or administrative penalties, damages, fines, disgorgement, exclusion from participation in government healthcare programs and the curtailment of our operations.

These regulations or codes may limit our ability to effectively market our products, or we could run afoul of the requirements imposed by these regulations, causing reputational harm and impose potentially substantial costs on us.

Even if we obtain regulatory approval for a product candidate, our products and business will remain subject to ongoing regulatory obligations and review.

If our product candidates are approved, they will be subject to ongoing regulatory requirements for manufacturing, labeling, packaging, storage, advertising, promotion, sampling, record-keeping, conduct of post-marketing studies and submission of safety, efficacy and other post-market information, including both federal and state requirements in the United States and comparable requirements outside of the United States. Accordingly, we and others with whom we work must continue to expend time, money and effort in all areas of regulatory compliance, including manufacturing, production and quality control.

Any regulatory approvals that we receive for our product candidates may also be subject to limitations on the approved indicated uses for which the product may be marketed or to the conditions of approval, or contain requirements for potentially costly post-marketing testing, including Phase 4 clinical trials, and surveillance to monitor the safety and efficacy of the product candidate. The FDA may also require a REMS as a condition of approval of our product candidates, which could include requirements for a medication guide, physician communication plans or additional elements to ensure safe use, such as restricted distribution methods, patient registries and other risk minimization tools. We will also be required to report certain adverse reactions and production problems, if any, to the FDA or other regulatory agencies and to comply with requirements concerning advertising and promotion for our products. Promotional communications with respect to prescription drugs are subject to a variety of legal and regulatory restrictions and must be consistent with the information in the product's approved label. As such, we may not promote our products for indications or uses for which they do not have FDA or other regulatory agency approval. The holder of an approved NDA must also submit new or supplemental applications and obtain FDA approval for certain changes to the approved product, product labeling, or manufacturing process. We could also be asked to conduct post-marketing clinical studies to verify the safety and efficacy of our product candidates in general or in specific patient subsets. An unsuccessful post-marketing study or failure to complete such a clinical study could result in the withdrawal of marketing approval. Furthermore, any new legislation addressing drug safety issues could result in delays in product development or commercialization or increased costs to assure compliance. Foreign regulatory authorities impose similar requirements. If a regulatory agency discovers previously unknown problems with a product, such as adverse events of unanticipated severity or frequency, or disagrees with the promotion, marketing or labeling of a product, such regulatory agency may impose restrictions on that product or us, including requiring withdrawal of the product from the market. If we fail to comply with applicable regulatory requirements, a regulatory agency or enforcement authority may, among other things:

- issue warning letters asserting that we are in violation of the law;
- seek an injunction or impose civil or criminal penalties or monetary fines;
- suspend or withdraw regulatory approval;
- suspend any of our ongoing clinical trials;
- refuse to approve pending applications or supplements to approved applications submitted by us or our strategic partners;
- restrict the marketing or manufacturing of our products;
- seize or detain products, or require a product recall;
- refuse to permit the import or export of our product candidates; or
- refuse to allow us to enter into government contracts.

Any government investigation of alleged violations of law could require us to expend significant time and resources in response and could generate negative publicity. Any failure to comply with ongoing regulatory requirements may significantly and adversely affect our ability to commercialize and generate revenue from our product candidates. If regulatory sanctions are applied or if regulatory approval is withdrawn, the value of our company and our operating results will be adversely affected.

We also cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative or executive action, either in the United States or abroad. If we are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we are not able to maintain regulatory compliance, we may lose any marketing approval that we may have obtained and we may not achieve or sustain profitability, which would adversely affect our business, prospects, financial condition and results of operations.

If our product candidates are approved for commercialization outside of the United States, we may be exposed to a number of risks associated with international business operations.

If our product candidates are approved for commercialization outside of the United States, we may market our approved drug products ourselves, or we may enter into agreements with third parties to market the aforesaid drug products outside of the United States. In such event, we may be subject to risks related to international business operations, including, but not limited to:

- varying levels of protection for intellectual property rights;
- changes in tariffs and the imposition of trade barriers;
- economic weakness, including inflation or political instability in particular foreign economies and markets;
- compliance with tax, employment, immigration and labor laws in respect of employees living or traveling abroad;
- foreign tax laws;
- currency fluctuations; and
- business interruptions resulting from geopolitical actions, such as wars and terrorist attacks, among others, or natural disasters, such as fires, floods, earthquakes and hurricanes, among others.

If the FDA or comparable regulatory authorities in other countries approve generic versions of our product candidates, or do not grant our product candidates a sufficient period of market exclusivity before approving their generic versions, our ability to generate revenue may be adversely affected.

Once an NDA is approved, the drug product covered will be listed as a reference listed drug in the FDA's Orange Book. In the United States, manufacturers of drug products may seek approval of generic versions of reference listed drugs through the submission of abbreviated new drug applications, or ANDAs. In support of an ANDA, a generic manufacturer is generally required to show that its product has the same active pharmaceutical ingredient(s), dosage form, strength, route of administration and conditions of use or labelling as the reference listed drug and that the generic version is bioequivalent to the reference listed drug. Generic drug products may be significantly less expensive to bring to market than the reference listed drug, and companies that produce generic drug products are generally able to offer them at lower prices. Thus, following the introduction of a generic drug product, a significant percentage of the sales of any reference listed drug may be lost to the generic drug product.

The FDA will not approve an ANDA for a generic drug product until the applicable period of market exclusivity for the reference listed drug has expired. The applicable period of market exclusivity varies depending on the type of exclusivity granted. A grant of market exclusivity is separate from the existence of patent protection and manufacturers may seek to launch generic versions of our drug products following the expiry of their respective marketing exclusivity periods, even if our drug products are still under patent protection at the relevant time.

Any competition that our product candidates may face, if and when such product candidates are approved for marketing and commercialized, from generic versions could substantially limit our ability to realize a return on our investment in the development of our product candidates and have a material and adverse effect on our business and prospects.

Our drug products may be subject to recalls, withdrawals, seizures or other enforcement actions by the FDA or comparable regulatory authorities in other countries if we fail to comply with regulatory requirements or previously unknown problems with our drug products are discovered after they reach the market.

The FDA or comparable regulatory authorities in other countries may withdraw approval of our drug products if we fail to maintain compliance with regulatory requirements or if problems occur after our drug products reach the market. The discovery of previously unknown problems with a drug product, including adverse events of unanticipated severity or frequency, problems with manufacturing processes or failure to comply with regulatory requirements, including the requirement to promote a drug product only for its approved indications and in accordance with the provisions of its approved label, may result in, among others:

- restrictions on the marketing or manufacturing of the product, complete withdrawal of the product from the market or product recalls;
- warning letters or holds on post-approval clinical trials;
- refusal of the FDA to approve pending NDAs or supplements to approved NDAs, or suspension or revocation of product license approvals;
- product seizure or detention, or refusal to permit the import or export of the product; or
- injunctions or the imposition of civil or criminal penalties.

In the event that our drug products are subject to recalls, withdrawals, seizures or other enforcement actions by the FDA or comparable regulatory authorities, our reputation and demand for our drug products could be materially and adversely affected. In addition, we may incur significant and unexpected expenditure and management attention may be diverted in connection with any such recall, withdrawal, seizure or other enforcement action or any corrective action required to be taken, which could have a material and adverse impact on our business and financial condition.

We may not be able to respond effectively to changing consumer preferences and demand.

Our success depends, in part, on our ability to anticipate and respond to changing consumer trends and preferences in the pharmaceutical industry. We may not be able to respond to these changes in a timely or commercially effective manner or at all. Our failure to accurately predict these trends could negatively impact our inventory levels, sales and reputation. The commercial success of our drug products will depend upon a number of factors, including our ability to, among others:

- anticipate consumers' therapeutic needs;
- innovate, develop and commercialize new drug products in a timely manner;
- competitively price our drug products;
- procure and maintain our drug products in sufficient volumes and in a timely manner; and
- differentiate our drug products from those of our competitors.

If we are unable to introduce new drug products, develop improvements to our existing drug products or maintain the appropriate inventory levels to meet our customers' demand in a timely manner or at all, our business and prospects could be materially and adversely affected.

We may not be able to engage third-party contract manufacturing organizations, or CMOs, to manufacture our approved drug products on a commercial scale to meet commercial demand for our drug products.

We may, in the future, rely on third-party CMOs or enter into manufacturing joint ventures with third parties to manufacture our approved drug products on a commercial scale. However, we cannot assure you that we will be able to contract with such third parties on acceptable terms, if at all, or that such third parties will satisfy our quality standards or meet our supply requirements in a timely manner, if at all. In addition, only a limited number of manufacturers are capable of supplying pharmaceutical products. The manufacturing process for our drug products will be highly regulated, and we will need to contract with manufacturers that can meet the relevant regulatory requirements on an ongoing basis. If the third-party manufacturers with

whom we contract fail to perform their obligations, we may not be able to meet commercial demand for our drug products, which would have a material and adverse impact on our business.

Risks Related to our Intellectual Property

Our commercial success depends largely on our ability to protect our intellectual property.

Our commercial success depends, in large part, on our ability to obtain and maintain patent protection and trade secret protection in the United States and elsewhere in respect of our product candidates and PRINT technology. If we fail to adequately protect our intellectual property rights, our competitors may be able to erode, negate or preempt any competitive advantage we may have. To protect our competitive position, we have filed and will continue to file for patents in the United States and elsewhere in respect of our product candidates and PRINT technology. The process of identifying patentable subject matter and filing a patent application is expensive and time-consuming. We cannot assure you that we will be able to file the necessary or desirable patent applications at a reasonable cost, in a timely manner, or at all. Further, since certain patent applications are confidential until patents are issued, third parties may have filed patent applications for subject matters covered by our pending patent applications without us being aware of such applications, and our patent applications may not have priority over patent applications of others. In addition, we cannot assure you that our pending patent applications will result in patents being obtained. The standards that patent offices in different jurisdictions use to grant patents are not always applied predictably or uniformly and may be changed.

Even if we have been or are able to obtain patent protection for our product candidates or PRINT technology, if the scope of such patent protection is not sufficiently broad, we may not be able to rely on such patent protection to prevent third parties from developing or commercializing our product candidates or technology. The enforceability of patents in the pharmaceutical industry involves complex legal and scientific questions and can be uncertain. Accordingly, we cannot assure you that third parties will not successfully challenge the validity, enforceability or scope of our patents. A successful challenge to our patents may lead to generic versions of our drug products being launched before the expiry of our patents or otherwise limit our ability to stop others from using or commercializing similar or identical products and technology, or the duration of the patent protection of our drug products and technology. If any of our patents are narrowed or invalidated, our business and prospects may be materially and adversely affected. In addition, we cannot assure you that we will be able to detect unauthorized use or take appropriate, adequate and timely actions to enforce our intellectual property rights. If we are unable to adequately protect our intellectual property, our business, competitive position and prospects may be materially and adversely affected.

Even if our patents or patent applications are unchallenged, they may not adequately protect our intellectual property or prevent third parties from designing around our claims. If the patent applications we file or may file do not lead to patents being granted or if the scope of any of our patent applications is challenged, we may face difficulties in developing our product candidates, companies may be dissuaded from collaborating with us, and our ability to commercialize our product candidates may be materially and adversely affected. We are unable to predict which of our patent applications will lead to patents or assure you that any of our patents will not be found invalid or unenforceable or challenged by third parties. The patents of others may prevent the commercialization of product candidates incorporating our technology. In addition, given the amount of time required for the development, clinical testing and regulatory review of new product candidates, the patent protecting our product candidates may expire before or shortly after such product candidates are commercialized, if at all.

Moreover, the issuance of a patent is not conclusive as to the inventorship of the patented subject matter, or its scope, validity or enforceability. We cannot assure you that all of the potentially relevant prior art, that is, any evidence that an invention is already known, relating to our patents and patent applications, has

been found. If such prior art exists, it may be used to invalidate a patent or may prevent a patent from being issued.

In addition, we, our collaborators or our licensees may fail to identify patentable aspects of inventions made in the course of development and commercialization activities before it is too late to obtain patent protection on them. As a result, we may miss potential opportunities to strengthen our patent position.

If we are unable to protect our trade secrets, the value of our PRINT technology and product candidates may be negatively impacted, which would have a material and adverse effect on our competitive position and prospects.

In addition to patent protection, we rely on trade secret protection to protect certain aspects of our intellectual property. While we require parties who have access to any portion of our trade secrets, such as our employees, consultants, advisers, CROs, CMOs, collaborators and other third parties, to enter into non-disclosure and confidentiality agreements with us, we cannot assure you that these parties will not disclose our proprietary information, including our trade secrets, in breach of their contractual obligations. Enforcing a claim that a party has illegally disclosed or misappropriated a trade secret is difficult, costly and time-consuming, and we may not be successful in doing so. If the steps we have taken to protect our trade secrets are deemed by the adjudicating court to be inadequate, we may not be able to obtain adequate recourse against a party for misappropriating our trade secrets.

Trade secrets can be difficult to protect as they may, over time, be independently discovered by our competitors or otherwise become known despite our trade secret protection. If any of our trade secrets were to be lawfully obtained or independently developed by our competitors, we would have no right to prevent such competitors, or those to whom they communicate such technology or information, from using that technology or information to compete with us. Such competitors could attempt to replicate some or all of the competitive advantages we derive from our development efforts, willfully infringe our intellectual property rights, design around our protected technology or develop their own competitive technologies that fall outside of our intellectual property rights.

If our trade secrets were to be disclosed to or independently developed by our competitors, our competitors may be able to exploit our PRINT technology to develop competing product candidates, and the value of our PRINT technology and our product candidates may be negatively impacted. This would have a material and adverse effect on our competitive position and prospects.

We rely on licenses to intellectual property that are owned by third parties.

We have entered and may, in the future, enter into license agreements with third parties to license the rights to use their technologies in our research, development and commercialization activities. License agreements generally impose various diligence, milestone payments, royalty, insurance and other obligations on us, and if we fail to comply with these obligations, our licensors may have the right to terminate these license agreements. Termination of these license agreements or the reduction or elimination of our licensed rights or the exclusivity of our licensed rights may have an adverse impact on, among others, our ability to develop and commercialize our product candidates. We cannot assure you that we will be able to negotiate new or reinstated licenses on commercially acceptable terms, or at all.

In addition, we license certain patent rights for our PRINT technology from The University of North Carolina at Chapel Hill, or UNC, under the UNC Amended and Restated License Agreement, dated as of December 15, 2008, as amended, or the UNC license. Under the UNC License, UNC has the right to terminate our license if we materially breach the agreement and fail to cure such breach within the stipulated time. In the event that UNC terminates our license and we have a product that relies on that license, it may bring a claim against us, and if they are successful, we may be required to compensate UNC for the unauthorized use of their patent rights through the payment of royalties.

Also, the agreements under which we license patent rights may not give us control over patent prosecution or maintenance, so that we may not be able to control which claims or arguments are presented and may not be able to secure, maintain or successfully enforce necessary or desirable patent protection from those patent rights. We do not have primary control over patent prosecution and maintenance for certain of the patents we license, and therefore cannot assure you that these patents and applications will be prosecuted or maintained in a manner consistent with the best interests of our business. We also cannot assure you that patent prosecution and maintenance activities by our licensors, if any, will be conducted in compliance with applicable laws and regulations or will result in valid and enforceable patents.

Pursuant to the terms of some of our license agreements with third parties, some of our third-party licensors have the right, but not the obligation, in certain circumstances, to control the enforcement of our licensed patents or defense of any claims asserting the invalidity of these patents. Even if we are permitted to pursue such enforcement or defense, we will require the cooperation of our licensors, and we cannot assure you that we will receive such cooperation on commercially acceptable terms, or at all. We also cannot assure you that our licensors will allocate sufficient resources or prioritize their or our enforcement of these patents or defense of these claims to protect our interests in the licensed patents. If we cannot obtain patent protection, or enforce existing or future patents against third parties, our competitive position, business and prospects may be materially and adversely affected.

Further, licenses to intellectual property may not always be available to us on commercially acceptable terms, or at all. In the event that the licenses we rely on are not available to us on commercially acceptable terms, or at all, our ability to commercialize our PRINT technology or product candidates, and our business and prospects, may be materially and adversely affected.

We may become involved in litigation to protect our intellectual property or enforce our intellectual property rights, which could be expensive, time-consuming and may not be successful.

Competitors may infringe our patents or misappropriate or otherwise violate our intellectual property rights. To counter infringement or unauthorized use, we may engage in litigation to, among others, enforce or defend our intellectual property rights, determine the validity or scope of our intellectual property rights and those of third parties, and protect our trade secrets. Such actions may be time-consuming and costly and may divert our management's attention from our core business and reduce the resources available for our clinical development, manufacturing and marketing activities, and consequently have a material and adverse effect on our business and prospects, regardless of the outcome.

In addition, in an infringement proceeding, a court may decide that a patent owned by, or licensed to, us is invalid or unenforceable, or may refuse to stop the other party from using the technology in question on the ground that our patents do not cover such technology. An adverse result in any litigation proceeding could put one or more of our patents at risk of being invalidated, held unenforceable or interpreted narrowly. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that our confidential information may be compromised by disclosure.

We may be subject to claims that our employees or consultants have wrongfully used or disclosed to us alleged trade secrets of their former employers or other clients.

As is common in our industry, a number of our employees, including our Chief Executive Officer and a number of our executive officers, were formerly employed by other biotechnology or pharmaceutical companies, including our competitors or potential competitors, among others, and may have entered into proprietary rights, non-disclosure and non-competition agreements or similar agreements, in connection with such previous employment. Moreover, we engage the services of scientific advisers and consultants to assist us in the development of our products, many of whom were previously employed at or may have previously been or are currently providing consulting or advisory services to, other biotechnology or pharmaceutical

companies, and who may have also entered into proprietary rights, non-disclosure and non-competition (or similar) agreements with such other companies.

While we require that our employees, scientific advisers and consultants do not use the proprietary information or know-how of others in their work for us, we cannot assure you that we will not be subject to claims that we or these employees, scientific advisers or consultants have inadvertently or otherwise used or disclosed the trade secrets or proprietary information of their former employers or former or present clients in their work for us, especially where such former employers or former or present clients are our competitors or potential competitors. Claims brought against us could cause us to incur unexpected and substantial costs, as well as divert our management's attention from our core business and reduce the resources available for our clinical development, manufacturing and marketing activities. Consequently, our business may be materially and adversely affected.

We may be subject to claims from third parties that our products infringe their intellectual property rights.

The pharmaceutical industry has experienced rapid technological change and obsolescence in the past, and our competitors have strong incentives to stop or delay any introduction of new drug products or related technologies by, among others, establishing intellectual property rights over their drug products or technologies and aggressively enforcing these rights against potential new entrants into the market. We expect that we and other industry participants will be increasingly subject to infringement claims as the number of competitors and drug products grows.

Our commercial success depends in large part upon our ability to develop, manufacture, market and sell our drug products or product candidates without infringing on the patents or other proprietary rights of third parties. It is not always clear to industry participants, including us, what the scope of a patent covers. Due to the large number of patents in issue and patent applications filed in our industry, there is a risk that third parties will claim that our products or technologies infringe their intellectual property rights.

Claims for infringement of intellectual property which are brought against us, whether with or without merit, and which are generally uninsurable, could result in time-consuming and costly litigation, diverting our management's attention from our core business and reducing the resources available for our drug product development, manufacturing and marketing activities, and consequently have a material and adverse effect on our business and prospects, regardless of the outcome. Moreover, such proceedings could put our patents at risk of being invalidated or interpreted narrowly and our patent applications at risk of not being issued. We also may not prevail in any lawsuits that we initiate and the damages or other remedies awarded, if any, may not be commercially meaningful. Uncertainties resulting from the initiation and continuation of litigation or other proceedings could also have a material and adverse effect on our ability to compete in the market. Third parties making claims against us could obtain injunctive or other equitable relief against us, which could prevent us from further developing or commercializing our product candidates.

In particular, we may be required to include a certification of patent invalidity or non-infringement, or a paragraph IV certification, in an NDA submitted under the 505(b)(2) regulatory pathway, to certify that a patent over a reference listed drug is invalid, unenforceable or will not be infringed by the manufacture, use or sale of our product candidate. The holder of such patent may file a patent infringement lawsuit against us after receiving notice of the paragraph IV certification. Any such patent infringement lawsuit, if filed, will trigger a one-time, automatic, 30-month stay of the FDA's ability to approve our application, unless the patent litigation is resolved in our favor or the patent expires before that time. Accordingly, we may invest a significant amount of time and expense in the development of a product candidate only to be subject to significant delay and incur substantial costs in litigation before such product candidate may be commercialized, if at all. Companies that produce reference listed drugs routinely bring claims for patent infringement against applicants under the 505(b)(2) regulatory pathway that are seeking regulatory approval to manufacture and market generic or reformulated forms of their reference listed drugs.

In the event of a successful infringement claim against us, including an infringement claim filed in response to a paragraph IV certification, we may be required to pay damages, cease the development or commercialization of our drug products or product candidates, re-engineer or redevelop our drug products or product candidates or enter into royalty or licensing agreements, any of which could have a material and adverse impact on our business, financial condition and results of operations. Any effort to re-engineer or redevelop our products would require additional monies and time to be expended and may not ultimately be successful.

Infringement claims may be brought against us in the future, and we cannot assure you that we will prevail in any ensuing litigation given the complex technical issues and inherent uncertainties involved in intellectual property litigation. Our competitors may have substantially greater resources than we do and may be able to sustain the costs of such litigation more effectively than we can.

Patent terms may be inadequate to protect our competitive position on our product candidates for an adequate amount of time.

Patents have a limited lifespan. In the United States, the natural expiration of a patent is generally 20 years after it is filed. While various extensions may be available, the life of a patent, and the protection it affords, is limited. Given the amount of time required for the development, testing and regulatory review of new product candidates, patents protecting such candidates might expire before or shortly after such candidates are commercialized.

We intend to seek extensions of patent terms in the United States and, if available, in other countries where we prosecute patents. In the United States, the U.S. Drug Price Competition and Patent Term Restoration Act of 1984, as amended, or the Hatch-Waxman Act, permits patent owners to request a patent term extension, based on regulatory review period for a product, of up to five years beyond the normal expiration of the patent, which is limited to one patent claiming the approved drug product or use in an indication (or any additional indications approved during the period of extension). However, the applicable authorities, including the FDA and the U.S. Patent and Trademark Office, or the USPTO, in the United States, and comparable regulatory authorities in other countries, may not agree with our assessment of whether such extensions are available, and may refuse to grant extensions to our patents, or grant more limited extensions than we had requested. In such event, our competitors may be able to take advantage of our investment in development and clinical trials by referencing our preclinical and clinical data in their marketing approval applications with the FDA to launch their drug product earlier than might otherwise be the case.

If we fail to comply with various procedural, document submission, fee payment or other requirements imposed by the USPTO or comparable patent agencies in other countries, our patent protection could be reduced or eliminated.

We are required, over the lifetime of an issued patent, to pay periodic maintenance fees to the USPTO and comparable patent agencies in other countries. We are also required by such patent agencies to comply with a number of procedural, documentary, fee payment and other conditions during the patent application process. While an inadvertent lapse can, in many cases, be cured by payment of a late fee or other means in accordance with the applicable rules, there are situations in which non-compliance can result in abandonment or lapse of a patent or patent application, resulting in the partial or complete loss of patent rights in the relevant jurisdiction. Such situations include, but are not limited to:

- a failure to respond to official actions within the prescribed time limits;
- the non-payment of fees; and
- a failure to properly legalize and submit formal documents.

If we or our licensors, which control the prosecution and maintenance of patents which we license, fail to maintain the patents or patent applications covering our product candidates or technology, such rights

would be reduced or eliminated and, consequently, our competitive position, business and prospects may be materially and adversely affected.

Changes in patent laws or interpretations of patent laws in the United States or elsewhere may diminish the value of our intellectual property or narrow the scope of protection of our patents.

In September 2011, the Leahy-Smith America Invents Act, or the Leahy-Smith Act, was signed into law, and many of the substantive changes became effective in March 2013. The Leahy-Smith Act includes a number of significant changes to U.S. patent law, including changing the United States patent system from a "first to invent" system to a "first inventor to file" system, expanding the definition of prior art and developing a post-grant review system.

The provisions under the Leahy-Smith Act may affect the way patent applications will be prosecuted and may also affect patent litigation. It may also weaken our ability to obtain patent protection in the United States for those applications filed after March 16, 2013.

Further, the post-grant review and inter partes review proceedings established under the Leahy-Smith Act have been used by certain parties to cause a cancellation of selected or all claims in relation to the issued patents of their competitors. For a patent with an effective filing date of March 16, 2013 or later, a petition for post-grant review can be filed by a third party in a nine-month window from issuance of the patent. A petition for inter partes review can be filed after the nine-month period for filing a post-grant review petition has expired for a patent with an effective filing date of March 16, 2013 or later. Post-grant review proceedings can be brought on any ground of invalidity, whereas inter partes review proceedings can only raise an invalidity challenge based on published prior art and patents. These adversarial actions at the USPTO review patent claims without the presumption of validity afforded to U.S. patents in lawsuits in U.S. federal courts, and use a lower burden of proof than that used in civil actions in the U.S. federal courts. Therefore, it is generally considered easier for a competitor or third party to have a U.S. patent invalidated in a USPTO post-grant review or inter partes review proceeding than invalidated in a litigation in a U.S. federal court. We cannot assure you that we, our licensors or our collaborators will be successful in defending any challenge by a third party in a USPTO proceeding.

In addition, recent court rulings in the United States have narrowed the scope of patent protection available and weakened the rights of patent owners, particularly in the pharmaceutical industry. In 2012, the Supreme Court of the United States, or the Supreme Court, issued a decision in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.* invalidating patent claims directed to a process of measuring a metabolic product in a patient to optimize a drug dosage for the patient. In 2013, the Supreme Court issued its decision in Association for *Molecular Pathology v. Myriad Genetics, Inc.* invalidating patent claims directed to the breast cancer susceptibility genes BRCA1 and BRCA2. In 2017, the Supreme Court issued its decision in *TC Heartland v. Kraft Food Group Brands*, holding that patentees can only sue alleged infringers in their state of incorporation. These rulings deviated from precedents and, accordingly, have created uncertainty with regard to our ability to obtain patents in the future as well as the value of such patents, once obtained. Depending on future actions by Congress, the U.S. courts, the USPTO and the relevant law-making bodies in other countries, the laws and regulations governing patents could change in unpredictable ways that would affect our ability to obtain new patents or to enforce our existing patents and patents that we might obtain in the future.

We may not be able to enforce our intellectual property rights throughout the world.

Filing, prosecuting, enforcing and defending patents on our PRINT technology and our product candidates throughout the world may be prohibitively expensive and may not be financially or commercially feasible. In countries where we have not obtained patent protection, our competitors may be able to use our proprietary technologies to develop competing product candidates.

Also, the legal systems of non-U.S. jurisdictions may not protect intellectual property rights to the same extent or in the same manner as the laws of the United States, and we may face significant difficulty in enforcing our intellectual property rights in these jurisdictions. The legal systems of certain developing countries may not favor the enforcement of patents and other intellectual property rights. We may therefore face difficulty in stopping the infringement or misappropriation of our patents or other intellectual property rights in those countries.

We need to protect our trademark, trade name and service mark rights to prevent competitors from taking advantage of our goodwill.

We believe that the protection of our trademark, trade name and service mark rights, such as Liquidia, the Liquidia logo and PRINT, is an important factor in product recognition, protecting our brand, maintaining goodwill and maintaining or increasing market share. We may expend substantial cost and effort in an attempt to register new trademarks, trade names and service marks and maintain and enforce our trademark, trade name and service mark rights. If we do not adequately protect our rights in our trademarks, trade names and service marks from infringement, any goodwill that we have developed in those trademarks could be lost or impaired.

Third parties may claim that the sale or promotion of our products, when and if approved, may infringe on the trademark, trade name and service mark rights of others. Trademark, trade name and service mark infringement problems occur frequently in connection with the sale and marketing of pharmaceutical products. If we become involved in any dispute regarding our trademark, trade name and service mark rights, regardless of whether we prevail, we could be required to engage in costly, distracting and time-consuming litigation that could harm our business. If the trademarks, trade names and service marks we use are found to infringe upon the trademarks, trade names or service marks of another company, we could be liable for damages and be forced to stop using those trademarks, trade names or service marks, and as result, we could lose all the goodwill that has been developed in those trademarks, trade names or service marks.

Risks Related to Healthcare Regulation

We are subject to various laws and regulations, such as healthcare fraud and abuse laws, false claim laws and health information privacy and security laws, among others, and failure to comply with these laws and regulations may have an adverse effect on our business.

Healthcare providers, physicians and third-party payors often play a primary role in the recommendation and prescription of any drug products for which we may obtain marketing approval. Our current and future arrangements with healthcare providers, physicians, third-party payors and customers, and our sales, marketing and educational activities, may expose us to broadly applicable fraud and abuse and other healthcare laws and regulations (at the federal and state level) that may constrain our business or financial arrangements and relationships through which we market, sell and distribute our drug products for which we obtain marketing approval.

In addition, we may be subject to transparency laws and patient privacy regulation by both the federal government and the states in which we conduct our business. The laws that may affect our ability to operate include, but are not limited to, the following:

- § the federal Anti-Kickback Statute, which prohibits, persons and entities including pharmaceutical manufacturers from, among other things, knowingly and willfully soliciting, receiving, offering or paying remuneration, directly or indirectly, overtly or covertly, in cash or in kind, to induce or reward, or in return for, either the referral of an individual for or the purchase, lease, order or recommendation of an item or service for which payment may be made, in whole or in part, under federal healthcare programs such as the Medicare and Medicaid programs. This statute has been interpreted broadly to apply to, among other things, arrangements between pharmaceutical manufacturers on the one hand and prescribers, purchasers and formulary managers on the other

hand. The term "remuneration" expressly includes kickbacks, bribes or rebates and also has been broadly interpreted to include anything of value, including, for example, gifts, discounts, waivers of payment, ownership interest and providing anything at less than its fair market value. There are a number of statutory exceptions and regulatory safe harbors protecting certain common activities from prosecution or other regulatory sanctions, however, the exceptions and safe harbors are drawn narrowly, and practices that do not fit squarely within an exception or safe harbor may be subject to scrutiny. The failure to meet all of the requirements of a particular applicable statutory exception or regulatory safe harbor does not make the conduct per se illegal under the federal Anti-Kickback Statute. Instead, the legality of the arrangement will be evaluated on a case-by-case basis based on a cumulative review of all of its facts and circumstances. Our practices may not meet all of the criteria for safe harbor protection from federal Anti-Kickback Statute liability in all cases. A person or entity does not need to have actual knowledge of the federal Anti-Kickback Statute or specific intent to violate it to have committed a violation. In addition, the government may assert that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the False Claims Act. The U.S. Patient Protection and Affordable Care Act of 2010, as amended, or the ACA, amended the False Claims Act to provide that a claim that includes items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim;

- the federal civil and criminal false claims laws and civil monetary penalty laws, including the False Claims Act, which prohibits individuals or entities from, among other things, knowingly presenting, or causing to be presented, claims for payment to, or approval by, the federal government that are false, fictitious or fraudulent or knowingly making, using or causing to be made or used, a false record or statement material to a false or fraudulent claim to avoid, decrease or conceal an obligation to pay money to the federal government. As a result of a modification made by the Fraud Enforcement and Recovery Act of 2009, a claim includes "any request or demand" for money or property presented to the federal government. Although we do not submit claims directly to payors, manufacturers can be held liable under these laws if they are deemed to "cause" the submission of false or fraudulent claims by, for example, providing inaccurate billing or coding information to customers, promoting a product off-label, marketing products of sub-standard quality, or, as noted above, paying a kickback that results in a claim for items or services. In addition, our activities relating to the reporting of wholesaler or estimated retail prices for our products, the reporting of prices used to calculate Medicaid rebate information and other information affecting federal, state and third-party reimbursement for our products, and the sale and marketing of our products, are subject to scrutiny under this law. For example, several pharmaceutical and other healthcare companies have faced enforcement actions under these laws for allegedly inflating drug prices they report to pricing services, which in turn were used by the government to set Medicare and Medicaid reimbursement rates, and for allegedly providing free product to customers with the expectation that the customers would bill federal programs for the product. The False Claims Act also permits a private individual acting as a "whistleblower" to bring actions on behalf of the federal government alleging violations of the False Claims Act and to share in any monetary recovery. In addition, federal Anti-Kickback Statute violations and certain marketing practices, including off-label promotion, may also implicate the False Claims Act. Although the False Claims Act is a civil statute, conduct that results in a False Claims Act violation may also implicate various federal criminal statutes;

- the federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, which imposes criminal and civil liability for knowingly and willfully executing, or attempting to execute, a scheme to defraud or to obtain, by means of false or fraudulent pretenses, representations or promises, any money or property owned by, or under the control or custody of, any healthcare benefit program, including private third-party payors and knowingly and willfully falsifying, concealing or covering up by trick, scheme or device, a material fact or making any materially false, fictitious or fraudulent statement in connection with the delivery of or payment for healthcare benefits, items or services.

Similar to the federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it to have committed a violation;

- HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act of 2009, or HITECH, and their respective implementing regulations, including the Final Omnibus Rule published on January 25, 2013, impose, among other things, obligations, including mandatory contractual terms, with respect to safeguarding the privacy, security and transmission of individually identifiable health information held by certain healthcare providers, health plans and healthcare clearinghouses, known as covered entities, and business associates. Among other things, HITECH made certain aspects of HIPAA's rules (notably the Security Rule) directly applicable to business associates — independent contractors or agents of covered entities that receive or obtain individually identifiable health information in connection with providing a service on behalf of a covered entity. HITECH also created four new tiers of civil monetary penalties, amended HIPAA to make civil and criminal penalties directly applicable to business associates, and gave state attorneys general new authority to file civil actions for damages or injunctions in federal court to enforce the federal HIPAA laws and seek attorney's fees and costs associated with pursuing federal civil actions. The Department of Health and Human Services Office of Civil Rights, or the OCR, has increased its focus on compliance and continues to train state attorneys general for enforcement purposes. The OCR has recently increased both its efforts to audit HIPAA compliance and its level of enforcement, with one recent penalty exceeding $5 million;

- the federal physician payment transparency requirements, sometimes referred to as the "Physician Payments Sunshine Act," created under the ACA which requires applicable manufacturers of covered drugs, devices, biologics and medical supplies for which payment is available under Medicare, Medicaid or the State Children's Health Insurance Program (with certain exceptions) to annually report to the U.S. Department of Health and Human Services, information related to certain payments or other transfers of value made or distributed to physicians (defined to include doctors, dentists, optometrists, podiatrists and chiropractors) and teaching hospitals, as well as ownership and investment interests held by physicians and their immediate family members;

- according to the U.S. Federal Trade Commission, or the FTC, failing to take appropriate steps to keep consumers' personal information secure constitutes unfair acts or practices in or affecting commerce in violation of Section 5(a) of the Federal Trade Commission Act, or the FTCA. The FTC expects a company's data security measures to be reasonable and appropriate in light of the sensitivity and volume of consumer information it holds, the size and complexity of its business, and the cost of available tools to improve security and reduce vulnerabilities. Medical data is considered sensitive data that merits stronger safeguards. The FTC's guidance for appropriately securing consumers' personal information is similar to what is required by the HIPAA Security Rule;

- analogous state laws and regulations, such as state anti-kickback and false claims laws, which may apply to items or services reimbursed by any third-party payor, including commercial insurers, some state laws require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government in addition to requiring drug manufacturers to report pricing and marketing information, including, among other things, information related to payments to physicians and other healthcare providers or marketing expenditures, state and local laws that require the registration of pharmaceutical sales representatives, and state laws governing the privacy and security of health information and the use of prescriber-identifiable data in certain circumstances, many of which differ from each other in significant ways and may not have the same effect, thus complicating compliance efforts; and

- price reporting laws that require us to calculate and report complex pricing metrics to government programs, where such reported prices may be used in the calculation of reimbursements or discounts on our drug products. Participation in such programs and compliance with their requirements may subject us to increased infrastructure costs and potentially limit our ability to price our drug products.

Further, we are subject to a number of environmental and health and safety laws and regulations, including those governing laboratory processes and the handling, use, storage, treatment and disposal of hazardous materials and waste.

Because of the breadth of these laws and the narrowness of the statutory exceptions and regulatory safe harbors available under such laws, it is possible that certain business activities could be subject to challenge under one or more of such laws. The scope and enforcement of each of these laws is uncertain and subject to rapid change in the current environment of healthcare reform, especially in light of the lack of applicable precedent and regulations. Federal and state enforcement bodies have recently increased their scrutiny of interactions between healthcare companies and healthcare providers, which has led to a number of investigations, prosecutions, convictions and settlements in the healthcare industry. Ensuring that business arrangements with third parties comply with applicable healthcare laws, as well as responding to possible investigations by government authorities, can be time- and resource-consuming and can divert management's attention from the business.

If our operations are found to be in violation of any of the laws or regulations described above or any other laws or government regulations that apply to us, we may be subject to penalties, including, but not limited to, criminal, civil and administrative penalties, damages, fines, disgorgement, individual imprisonment, possible exclusion from participation in Medicare, Medicaid or other government healthcare programs, injunctions, private qui tam actions brought by individual whistleblowers in the name of the government and the curtailment or restructuring of our operations as well as additional reporting obligations and oversight if we become subject to a corporate integrity agreement or other agreement to resolve allegations of non-compliance with these laws, any of which could adversely affect our ability to operate our business and our results of operations.

Legislative or regulatory reform of the healthcare system in our target markets may affect our operations and profitability.

In recent years, there have been numerous initiatives on the federal and state levels in the United States for comprehensive reforms affecting the payment for, the availability of and reimbursement for healthcare services. There have been a number of federal and state proposals during the last few years regarding the pricing of pharmaceutical and biopharmaceutical products, limiting coverage and reimbursement for drugs and other medical products, government control and other changes to the healthcare system in the United States. For example, the ACA and the Health Care and Education Reconciliation Act of 2010, which amends the ACA, collectively, the U.S. Health Reform Laws, were signed into law in the United States in March 2010.

Among the provisions of the ACA of importance to the pharmaceutical industry are the following:

- the Medicaid Drug Rebate Program requires pharmaceutical manufacturers to enter into and have in effect a national rebate agreement with the Secretary of the Department of Health and Human Services as a condition of Medicare Part B and Medicaid coverage of the manufacturer's outpatient drugs furnished to Medicaid patients. Effective in 2010, the ACA made several changes to the Medicaid Drug Rebate Program, including increasing pharmaceutical manufacturers' rebate liability by raising the minimum basic Medicaid rebate on most branded prescription drugs from 15.1% of average manufacturer price, or AMP, to 23.1% of AMP, establishing new methodologies by which AMP is calculated and rebates owed by manufacturers under the Medicaid Drug Rebate Program are collected for drugs that are inhaled, infused, instilled, implanted or injected, adding a new rebate calculation for "line extensions" (i.e., new formulations, such as extended release formulations) of solid oral dosage forms of branded products, expanding the universe of Medicaid utilization subject to drug rebates to covered drugs dispensed to individuals who are enrolled in Medicaid managed care organizations, and expanding the population potentially eligible for Medicaid drug benefits;

- the expansion of eligibility criteria for Medicaid programs by, among other things, allowing states to offer Medicaid coverage to additional individuals beginning in April 2010 and by adding new mandatory eligibility categories for certain individuals with income at or below 133.0% of the federal poverty level beginning in 2014, thereby potentially increasing both the volume of sales and manufacturers' Medicaid rebate liability;

- in order for a pharmaceutical product to receive federal reimbursement under the Medicare Part B and Medicaid programs or to be sold directly to U.S. government agencies, the manufacturer must extend discounts to entities eligible to participate in the 340B drug pricing program. The required 340B discount on a given product is calculated based on the AMP and Medicaid rebate amounts reported by the manufacturer. Effective in 2010, the ACA expanded the types of entities eligible to receive discounted 340B pricing, although, under the current state of the law, with the exception of children's hospitals, these newly eligible entities will not be eligible to receive discounted 340B pricing on orphan drugs when used for the orphan indication. In addition, as 340B drug pricing is determined based on AMP and Medicaid rebate data, the revisions to the Medicaid rebate formula and AMP definition described above could cause the required 340B discount to increase. Recent proposed guidance from the U.S. Department of Health and Human Services Health Resources and Services Administration, if adopted in its current form, may affect manufacturers' rights and liabilities in conducting audits and resolving disputes under the 340B program;

- the ACA imposed a requirement on manufacturers of branded drugs to provide a 50% (and 70% commencing on January 1, 2019) discount off the negotiated price of branded drugs dispensed to Medicare Part D patients in the coverage gap (i.e., the donut hole);

- the ACA imposed an annual, nondeductible fee on any entity that manufactures or imports certain branded prescription drugs, apportioned among these entities according to their market share in certain government healthcare programs, although this fee would not apply to sales of certain products approved exclusively for orphan indications;

- the ACA implemented the Physician Payments Sunshine Act;

- the ACA requires annual reporting of drug samples that manufacturers and distributors provide to physicians;

- the ACA expanded healthcare fraud and abuse laws in the United States, including the False Claims Act and the federal Anti-Kickback Statute, new government investigative powers and enhanced penalties for non-compliance;

- the ACA established a licensing framework for follow-on biologics;

- a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in and conduct comparative clinical effectiveness research, along with the funding for such research. The research conducted by the Patient-Centered Outcomes Research Institute may affect the market for certain pharmaceutical products by influencing decisions relating to coverage and reimbursement rates; and

- the ACA established the Center for Medicare Innovation at the Centers for Medicare & Medicaid Center to test innovative payment and service delivery models to lower Medicare and Medicaid spending, potentially including prescription drug spending. Funding has been allocated to support the mission of the Center for Medicare and Medicaid Innovation from 2011 to 2019.

Some of the provisions of the ACA have yet to be implemented, and there have been judicial and Congressional challenges to certain aspects of the ACA, as well as recent efforts by the Trump administration to repeal or replace certain aspects of the ACA. Since January 2017, President Trump has signed two Executive Orders and other directives designed to delay the implementation of certain provisions of the ACA or otherwise circumvent some of the requirements for health insurance mandated by the ACA. Concurrently, Congress has considered legislation that would repeal or repeal and replace all or part of the ACA. While Congress has not passed comprehensive repeal legislation, two bills affecting the implementation of certain taxes under the ACA have been signed into law. The Tax Cuts and Jobs Act of 2017, or the TCJA, includes a provision repealing, effective January 1, 2019, the tax-based shared

responsibility payment imposed by the ACA on certain individuals who fail to maintain qualifying health coverage for all or part of a year that is commonly referred to as the "individual mandate". Additionally, on January 22, 2018, President Trump signed a continuing resolution on appropriations for fiscal year 2018 that delayed the implementation of certain ACA-mandated fees, including the so-called "Cadillac" tax on certain high cost employer-sponsored insurance plans, the annual fee imposed on certain health insurance providers based on market share, and the medical device excise tax on non-exempt medical devices. Further, the Bipartisan Budget Act of 2018, or the BBA, among other things, amends the ACA, effective January 1, 2019, to close the coverage gap in most Medicare drug plans, commonly referred to as the "donut hole".

In addition, other legislative changes have been proposed and adopted since the ACA was enacted. In August 2011, the Budget Control Act of 2011, among other things, created measures for spending reductions by Congress. A Joint Select Committee on Deficit Reduction, tasked with recommending a targeted deficit reduction of at least $1.2 trillion for the years 2013 through 2021, was unable to reach required goals, thereby triggering the legislation's automatic reduction to several government programs. This includes aggregate reductions to Medicare payments to providers of up to 2.0% per fiscal year, which went into effect in 2013, and due to subsequent legislative amendments to the statute, including the BBA, will remain in effect through 2027 unless additional Congressional action is taken. In January 2013, then-President Barack Obama signed into law the American Taxpayer Relief Act of 2012, or the ATRA, which, among others, delayed for another two months the budget cuts mandated by these sequestration provisions of the Budget Control Act of 2011. The ATRA also reduced Medicare payments to several providers, including hospitals, imaging centers and cancer treatment centers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years. These new laws may result in additional reductions in Medicare and other healthcare funding, which could have a material and adverse effect on our customers and accordingly, our financial operations.

Further, there has been increasing legislative and enforcement interest in the United States with respect to specialty drug pricing practices. Specifically, there have been several recent U.S. Congressional inquiries and proposed and enacted federal legislation designed to, among other things, bring more transparency to drug pricing, reduce the cost of prescription drugs under Medicare, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for drugs. At the state level, legislatures have increasingly passed legislation and implemented regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing.

We are unable to predict the future course of federal or state healthcare legislation in the United States directed at broadening the availability of healthcare and containing or lowering the cost of healthcare. The U.S. Health Reform Laws and any further changes in the law or regulatory framework that reduce our revenue or increase our costs could also have a material and adverse effect on our business, financial condition and results of operations.

Healthcare laws and regulations may affect the pricing of our drug products and may affect our profitability.

In certain countries, the government may provide healthcare at a subsidized cost to consumers and regulate prices, patient eligibility or third-party payor reimbursement policies to control the cost of drug products. Such a system may lead to inconsistent pricing of our drug products from one country to another. The availability of our drug products at lower prices in certain countries may undermine our sales in other countries where our drug products are more expensive. In addition, certain countries may set prices by reference to the prices of our drug products in other countries. Our inability to secure adequate prices in a particular country may adversely affect our ability to obtain an acceptable price for our drug products in

existing and potential markets. If we are unable to obtain a price for our drug products that provides an appropriate return on our investment, our profitability may be materially and adversely affected.

Risks Related to this Offering and Our Common Stock

No active trading market for our common stock exists or may develop, and you may not be able to resell your common stock at or above the initial public offering price.

Prior to this offering, there has been no public market for our common stock and, although we have applied to have our common stock listed on The Nasdaq Capital Market, an active trading market for our shares may never develop or be sustained following this offering. The initial price to public for our common stock will be determined through negotiations with the underwriters, and the negotiated price may not be indicative of the market price of the common stock after the offering. The lack of an active market may impair your ability to sell your shares at the time you wish to sell them or at a price that you consider reasonable, may reduce the market value of your shares and may impair your ability to raise capital. If you purchase shares of our common stock in this offering, you may not be able to resell those shares at or above the initial public offering price.

Future sales of our common stock or securities convertible into our common stock in the public market could cause our stock price to fall.

Our stock price could decline as a result of sales of a large number of shares of our common stock or securities convertible into our common stock after this offering or the perception that these sales could occur. These sales, or the possibility that these sales may occur, also might make it more difficult for us to sell equity securities in the future at a time and at a price that we deem appropriate.

Upon completion of this offering, shares of our common stock will be outstanding (shares of common stock will be outstanding assuming exercise in full of the underwriters' option to purchase additional shares). All shares of common stock expected to be sold in this offering will be freely tradable without restriction or further registration under the Securities Act of 1933, as amended, or the Securities Act, unless held by our "affiliates," as that term is defined in Rule 144 under the Securities Act, or Rule 144. The resale of the remaining shares, or % of our outstanding shares after the completion of this offering, is currently prohibited or otherwise restricted as a result of securities law provisions, market standoff agreements entered into by our stockholders with us or lock-up agreements entered into by our stockholders with the underwriters; however, subject to applicable securities law restrictions these shares will be able to be sold in the public market beginning 180 days after the date of this prospectus. Shares issued upon the exercise of stock options outstanding under our equity incentive plans or pursuant to future awards granted under those plans will become available for sale in the public market to the extent permitted by the provisions of applicable vesting schedules, any applicable market stand-off and lock-up agreements, and Rule 144 and Rule 701 under the Securities Act, or Rule 701. For more information see the section of this prospectus captioned "Shares Eligible for Future Sale."

Upon completion of this offering, the holders of approximately shares, or %, of our common stock, will have rights, subject to some conditions, to require us to file registration statements covering the sale of their shares or to include their shares in registration statements that we may file for ourselves or other stockholders. We also intend to register the offer and sale of all shares of common stock that we may issue under our equity compensation plans. Once we register the offer and sale of shares for the holders of registration rights and shares to be issued under our equity incentive plans, they can be freely sold in the public market upon issuance or resale (as applicable), subject to the lock-up agreements described in the section of this prospectus captioned "Underwriting."

In the future, we may issue additional shares of common stock or other equity or debt securities convertible into common stock in connection with a financing, acquisition, litigation settlement, employee arrangements or otherwise. Any such issuance could result in substantial dilution to our existing stockholders and could cause our stock price to decline.

The incurrence of indebtedness could result in increased fixed payment obligations, and we may be required to agree to certain restrictive covenants, such as limitations on our ability to incur additional debt, limitations on our ability to acquire, sell or license intellectual property rights, limitations on declaring dividends and other operating restrictions that could adversely impact our ability to conduct our business. We could also be required to seek funds through collaborations, strategic alliances or licensing arrangements with third parties, and we could be required to do so at an earlier stage than otherwise would be desirable. In connection with any such collaborations, strategic alliances or licensing arrangements, we may be required to relinquish valuable rights to our intellectual property, future revenue streams, research programs or product candidates, grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves, or otherwise agree to terms unfavorable to us, any of which may have a material adverse effect on our business, operating results and prospects.

Our management has broad discretion in using the net proceeds from this offering and may not use them effectively.

We expect to use the net proceeds of this offering to complete our ongoing Phase 3 clinical trial of LIQ861, advance LIQ865 through our planned Phase 2-enabling toxicology studies, fund operations supporting the development of LIQ861 and LIQ865 and repay approximately $2.3 million of outstanding indebtedness. Our management will have broad discretion in the application of the balance of the net proceeds and could spend the proceeds in ways that do not improve our results of operations or enhance the value of our equity. The failure by our management to apply these funds effectively could result in financial losses that could have a material adverse effect on our business, diminish available cash flows available to service our debt, cause the value of our equity to decline and delay the development of our product candidates. Pending their use, we may invest the net proceeds from this offering in short-term, investment-grade, interest-bearing securities, which may not yield favorable returns.

We expect that the market price of our common stock may be volatile, and you may lose all or part of your investment.

The trading prices of the securities of pharmaceutical and biotechnology companies have been highly volatile. The trading price of our common stock following this offering may be highly volatile and could be subject to wide fluctuations in response to various factors, some of which are beyond our control. In addition to the factors discussed in this "Risk Factors" section and elsewhere in this prospectus, these factors include:

- the results of our or our competitors' clinical trials;
- adverse results or delays in the planned clinical trials of our product candidates or any future clinical trials we may conduct, or changes in the development status of our product candidates;
- any delay in our regulatory filings for our product candidates and any adverse development or perceived adverse development with respect to the applicable regulatory authority's review of such filings, including without limitation the FDA's issuance of a "refusal to file" letter or a request for additional information;
- regulatory or legal developments in the United States and other countries, especially changes in laws or regulations applicable to our products and product candidates, including clinical trial requirements for approvals;
- our inability to obtain or delays in obtaining adequate product supply for any approved product or inability to do so at acceptable prices;

- failure to commercialize our product candidates or if the size and growth of the markets we intend to target fail to meet expectations;
- additions or departures of key scientific or management personnel;
- unanticipated serious safety concerns related to the use of our product candidates;
- introductions or announcements of new products offered by us or significant acquisitions, strategic collaborations, joint ventures or capital commitments by us, our collaborators or our competitors and the timing of such introductions or announcements;
- the introduction by our competitors of new products or technologies, or the success of our competitors' products or technologies;
- our ability or inability to effectively manage our growth;
- changes in the structure of healthcare payment systems;
- our failure to meet the estimates and projections of the investment community or that we may otherwise provide to the public;
- publication of research reports about us or our industry, or positive or negative recommendations or withdrawal of research coverage by securities analysts;
- market conditions in the pharmaceutical and biotechnology sectors or the economy generally;
- our ability or inability to raise additional capital through the issuance of equity or debt or collaboration arrangements and the terms on which we raise it;
- trading volume of our common stock;
- disputes or other developments relating to proprietary rights, including patents, litigation matters and our ability to obtain patent protection for our technologies;
- period-to-period fluctuations in our quarterly results of operations or those of our competitors;
- discrepancies between our actual operating results and the estimates or projections of investors or securities analysts;
- fluctuations in the share price and trading volumes of other publicly traded companies engaged in similar business activities as us;
- market conditions in the pharmaceutical industry and in general;
- research and reports published by securities and industry analysts on our company or other companies engaged in similar business activities as us;
- safety concerns in relation to the use of any of our product candidates or approved products; and/or
- our involvement in significant lawsuits, including patent or stockholder litigation.

The stock market in general, and market prices for the securities of pharmaceutical companies like ours in particular, have from time to time experienced volatility that often has been unrelated to the operating performance of the underlying companies. These broad market and industry fluctuations may adversely affect the market price of our common stock, regardless of our operating performance. Stock prices of many pharmaceutical companies have fluctuated in a manner unrelated or disproportionate to the operating performance of those companies. In several recent situations when the market price of a stock has been volatile, holders of that stock have instituted securities class action litigation against the company that issued the stock. If any of our stockholders were to bring a lawsuit against us, the defense and disposition of the lawsuit could be costly and divert the time and attention of our management and harm our operating results.

As a new investor, you will immediately experience substantial dilution as a result of this offering. Furthermore, future sales and issuances of equity securities, convertible securities or other securities could result in additional dilution of the percentage ownership of holders of our common stock.

The purchasers of shares of our common stock in this offering will experience immediate and substantial dilution of $ per share, based on the assumed initial public offering price of $ per share.

This dilution represents the amount by which the per share purchase price of our common stock offered in this offering exceeds the pro forma as adjusted net tangible book value per share of our common stock immediately following this offering. In addition, you may also experience additional dilution upon future equity issuances, including any other convertible debt or equity securities we may issue in the future, the exercise of stock options to purchase common stock granted to our employees, consultants and directors, including options to purchase common stock granted under our stock option and equity incentive plans, or the issuance of common stock in settlement of previously issued awards under our stock option and equity incentive plans that may vest in the future. See "Dilution."

We expect that significant additional capital will be needed in the future to continue our planned operations. To raise capital, we may sell equity securities, convertible securities or other securities in one or more transactions at prices and in a manner we determine from time to time. If we sell equity securities, convertible securities or other securities in more than one transaction, investors in this offering may be materially diluted by subsequent sales. Such sales would also likely result in material dilution to our existing equity holders, and new investors could gain rights, preferences and privileges senior to those of holders of our existing equity securities.

Our principal stockholders and management own a significant percentage of our stock and will be able to exercise significant influence over matters subject to stockholder approval.

Our executive officers, directors and principal stockholders, together with their respective affiliates, beneficially owned 61.2% of our capital stock as of April 30, 2018 and, upon completion of this offering, that same group will beneficially own % of our capital stock, of which % will be beneficially owned by our executive officers (assuming no exercise of the underwriters' option to purchase additional shares). Accordingly, after this offering, our executive officers, directors and principal stockholders will be able to determine the composition of the Board, retain the voting power to approve all matters requiring stockholder approval, including mergers and other business combinations, and continue to have significant influence over our operations. This concentration of ownership could have the effect of delaying or preventing a change in our control or otherwise discouraging a potential acquirer from attempting to obtain control of us that you may believe are in your best interests as one of our stockholders. This in turn could have a material adverse effect on our stock price and may prevent attempts by our stockholders to replace or remove the Board or management.

If securities or industry analysts do not publish research reports about our business, or if they issue an adverse opinion about our business, our stock price and trading volume could decline.

The trading market for our common stock may be influenced by the research and reports that industry or securities analysts publish about us or our business. We do not currently have, and may never obtain research coverage by securities and industry analysts. If no or few analysts commence research coverage of us, or one or more of the analysts who cover us issues an adverse opinion about our company, our stock price would likely decline. If one or more of these analysts ceases research coverage of us or fails to regularly publish reports on us, we could lose visibility in the financial markets, which in turn could cause our stock price or trading volume to decline.

If we fail to maintain an effective system of internal control over financial reporting, we may not be able to accurately report our financial results or prevent fraud. As a result, stockholders could lose confidence in our financial and other public reporting, which would harm our business and the trading price of our common stock.

Effective internal controls over financial reporting are necessary for us to provide reliable financial reports and, together with adequate disclosure controls and procedures, are designed to prevent fraud. Any failure to implement required new or improved controls, or difficulties encountered in their implementation could cause us to fail to meet our reporting obligations. Inferior internal controls could also cause investors to lose

confidence in our reported financial information, which could have a negative effect on the trading price of our common stock. In addition, any future testing by us conducted in connection with Section 404 of the Sarbanes-Oxley Act of 2002, as amended, or the Sarbanes-Oxley Act, or the subsequent testing by our independent registered public accounting firm, may reveal deficiencies in our internal controls over financial reporting that are deemed to be material weaknesses or that may require prospective or retroactive changes to our financial statements or identify other areas for further attention or improvement.

We will be required, pursuant to Section 404 of the Sarbanes-Oxley Act, to furnish a report by management on, among other things, the effectiveness of our internal control over financial reporting as early as the fiscal year ending December 31, 2018. However, for as long as we are an "emerging growth company" under the Jumpstart Our Business Startups Act of 2012, as amended, or the JOBS Act, our independent registered public accounting firm will not be required to attest to the effectiveness of our internal controls over financial reporting pursuant to Section 404. We could be an emerging growth company for up to five years. An independent assessment of the effectiveness of our internal controls could detect problems that our management's assessment might not. Undetected material weaknesses in our internal controls could lead to financial statement restatements and require us to incur the expense of remediation.

We will incur increased costs by being a public company.

As a public company, we will incur significant legal, accounting and other expenses that we did not incur as a private company, including costs associated with public company reporting requirements. We also anticipate that we will incur costs associated with relatively recently adopted corporate governance requirements, including requirements of the U.S. Securities and Exchange Commission and the Nasdaq Stock Market LLC, or Nasdaq. We expect these rules and regulations to increase our legal and financial compliance costs and to make some activities more time-consuming and costly. We also expect that these rules and regulations may make it more difficult and more expensive for us to obtain director and officer liability insurance and we may be required to accept reduced policy limits and coverage or incur substantially higher costs to obtain the same or similar coverage. As a result, it may be more difficult for us to attract and retain qualified individuals to serve on our Board or as executive officers. We are currently evaluating and monitoring developments with respect to these rules, and we cannot predict or estimate the amount of additional costs we may incur or the timing of such costs.

When we cease to be an "emerging growth company" and when our independent registered public accounting firm is required to undertake an assessment of our internal control over financial reporting, the cost of our compliance with Section 404 of the Sarbanes-Oxley Act will correspondingly increase. Moreover, if we are not able to comply with the requirements of Section 404 applicable to us in a timely manner, or if we or our independent registered public accounting firm identifies deficiencies in our internal control over financial reporting that are deemed to be material weaknesses, the market price of our stock could decline and we could be subject to sanctions or investigations by the SEC or other regulatory authorities, which would require additional financial and management resources.

We are an "emerging growth company," as defined in the JOBS Act, and as a result of the reduced disclosure and governance requirements applicable to emerging growth companies, our common stock may be less attractive to investors.

We are an "emerging growth company," as defined in the JOBS Act, and we take advantage of certain exemptions from various reporting requirements that are applicable to other public companies that are not "emerging growth companies" including, but not limited to, not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act, reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements, and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved. We cannot predict if investors will find our common stock less attractive because we rely on these exemptions. If some investors find our common

stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may be more volatile. We will take advantage of these reporting exemptions until we are no longer an "emerging growth company." We will remain an "emerging growth company" until the earliest of (i) the last day of the fiscal year in which we have total annual gross revenues of $1.07 billion or more, (ii) the last day of 2023, (iii) the date on which we have issued more than $1.0 billion in nonconvertible debt during the previous three years or (iv) the date on which we are deemed to be a large accelerated filer under the rules of the SEC.

Anti-takeover provisions in our charter documents and under Delaware law could make an acquisition of us difficult, limit attempts by our stockholders to replace or remove our current management and adversely affect our stock price.

Provisions of our amended and restated certificate of incorporation and amended and restated bylaws to be effective upon consummation of this offering may delay or discourage transactions involving an actual or potential change in our control or change in our management, including transactions in which stockholders might otherwise receive a premium for their shares, or transactions that our stockholders might otherwise deem to be in their best interests. Therefore, these provisions could adversely affect the price of our stock. Among other things, the certificate of incorporation and bylaws will:

- permit the Board to issue up to shares of preferred stock, with any rights, preferences and privileges as they may designate;
- provide that the authorized number of directors may be changed only by resolution of our Board;
- provide that all vacancies, including newly created directorships, may, except as otherwise required by law, be filled by the affirmative vote of a majority of directors then in office, even if less than a quorum;
- require that any action to be taken by our stockholders must be effected at a duly called annual or special meeting of stockholders and may not be taken by written consent;
- creating a staggered board of directors such that all members of our Board are not elected at one time;
- allowing the authorized number of our directors to be changed only by resolution of our Board;
- allowing for the issuance of authorized but unissued shares of our capital stock without any further vote or action by our stockholders; and
- establishing advance notice requirements for nominations for election to the Board or for proposing matters that can be acted upon at stockholders' meetings.

In addition, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, or the DGCL, which generally prohibits a Delaware corporation from engaging in any of a broad range of business combinations with any stockholder owning in excess of 15% of our outstanding stock for a period of three years following the date on which the stockholder obtained such 15% equity interest in us. See the section of this prospectus captioned "Description of Capital Stock — Anti-Takeover Effects of Provisions of our Certificate of Incorporation and Bylaws and Delaware Law" for additional information.

The terms of our authorized preferred stock selected by our Board at any point could decrease the amount of earnings and assets available for distribution to holders of our common stock or adversely affect the rights and powers, including voting rights, of holders of our common stock without any further vote or action by the stockholders. As a result, the rights of holders of our common stock will be subject to, and may be adversely affected by, the rights of the holders of any preferred stock that may be issued by us in the future, which could have the effect of decreasing the market price of our common stock.

Any provision of our certificate of incorporation or bylaws or Delaware corporate law that has the effect of delaying or deterring a change in control could limit opportunities for our stockholders to receive a premium for their shares of common stock, and could also affect the price that investors are willing to pay for our common stock.

Because we do not anticipate paying any cash dividends on our common stock in the foreseeable future, capital appreciation, if any, will be your sole source of gain.

We have never declared or paid cash dividends on our equity securities. We currently intend to retain all of our future earnings, if any, to finance the growth and development of our business. In addition, the terms of existing or any future debt agreements may preclude us from paying dividends. As a result, capital appreciation, if any, of our equity securities will likely be your sole source of gain for the foreseeable future.

Our ability to use our net operating loss carry forwards and certain other tax attributes may be limited.

Under Section 382 of the Internal Revenue Code of 1986, as amended, or the Code, if a corporation undergoes an "ownership change", generally defined as a greater than 50.0% change (by value) in its equity ownership over a three year period, the corporation's ability to use its pre-change net operating loss carryforwards and other pre-change tax attributes, such as research tax credits, to offset its post-change income may be limited. With this offering as well as other past transactions and any ownership changes that we may experience in the future as a result of subsequent shifts in ownership of our shares of common stock, we may trigger an "ownership change" limitation. Should this occur, and if we earn net taxable income, our ability to use our pre-change net operating loss carryforwards to offset U.S. federal taxable income may be subject to limitations, which could potentially result in increased future tax liability to us.

The recently passed Tax Cuts and Jobs Act, or the TCJA, could adversely affect our business and financial condition.

On December 22, 2017, President Trump signed into law the TCJA which significantly reforms the Code. The TCJA, among other things, contains significant changes to corporate taxation, including reduction of the corporate tax rate from a top marginal rate of 35% to a flat rate of 21%, limitation of the tax deduction for interest expense to 30% of adjusted earnings (except for certain small businesses), limitation of the deduction for net operating losses generated after December 31, 2017 to 80% of current year taxable income and elimination of net operating loss carrybacks, immediate deductions for certain new investments instead of deductions for depreciation expense over time and modifying or repealing many business deductions and credits. Federal net operating losses arising in taxable years ending after December 31, 2017 will be carried forward indefinitely pursuant to the TCJA. We continue to examine the impact this tax reform legislation may have on our business. Notwithstanding the reduction in the corporate income tax rate, the overall impact of the TCJA is uncertain and our business and financial condition could be adversely affected. The impact of this tax reform on holders of our common stock is also uncertain and could be adverse. We urge our stockholders, including purchasers of common stock in this offering, to consult with their legal and tax advisors with respect to such legislation and the potential tax consequences of investing in our common stock.

Our amended and restated certificate of incorporation designates the Court of Chancery of the State of Delaware as the sole and exclusive forum for certain types of actions and proceedings that may be initiated by our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or other employees.

Our amended and restated certificate of incorporation provides that, to the fullest extent permitted by law, the Court of Chancery of the State of Delaware will be the sole and exclusive forum for: (i) any derivative action or proceeding brought on our behalf; (ii) any action asserting a claim of breach of a fiduciary duty owed by any of our directors or officers to us or our stockholders; (iii) any action asserting a claim against us arising pursuant to any provision of the DGCL, our amended and restated certificate of incorporation or our amended and restated bylaws; or (d) any action asserting a claim against us governed by the internal affairs doctrine. Any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock is deemed to have received notice of and consented to the foregoing provisions. This choice of forum provision may limit a stockholder's ability to bring a claim in a judicial forum that it finds more favorable for disputes with us or our directors or officers, which may discourage such lawsuits against us and our directors or officers. Alternatively, if a court were to find this choice of forum provision inapplicable to, or unenforceable in respect of, one or more of the specified types of actions or proceedings, we may incur additional costs associated with resolving such matters in other jurisdictions, which could adversely affect our business, financial condition, prospects or results of operations.

CAUTIONARY NOTE REGARDING FORWARD LOOKING STATEMENTS

This prospectus contains forward-looking statements. All statements other than statements of historical facts contained in this prospectus may be forward-looking statements. The forward-looking statements are contained principally in the sections entitled "Prospectus Summary," "Risk Factors," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Business," but are also contained elsewhere in this prospectus. In some cases, you can identify forward-looking statements by terms such as "may," "might," "will," "should," "expects," "plans," "anticipates," "could," "would," "intends," "targets," "projects," "contemplates," "believes," "estimates," "predicts," "potential" or "continue" or the negative of these terms or other similar expressions. Forward-looking statements involve known and unknown risks, uncertainties and other important factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements. Forward-looking statements include, but are not limited to, statements about:

- our plans to develop and commercialize our product candidates;
- our planned clinical trials for our product candidates;
- the timing of the availability of data from our clinical trials;
- the timing of our planned regulatory filings;
- the timing of and our ability to obtain and maintain regulatory approvals for our product candidates;
- the clinical utility of our product candidates and their potential advantages compared to other treatments;
- our commercialization, marketing and distribution capabilities and strategy;
- our ability to establish and maintain arrangements for the manufacture of our product candidates and the sufficiency of our current manufacturing facilities to produce commercial quantities of our product candidates;
- our ability to establish and maintain collaborations;
- our estimates regarding the market opportunities for our product candidates;
- our intellectual property position and the duration of our patent rights;
- our estimates regarding future expenses, capital requirements and needs for additional financing; and
- our expected use of proceeds from this offering and the period over which such proceeds, together with cash, will be sufficient to meet our operating needs.

You should refer to the "Risk Factors" section of this prospectus for a discussion of important factors that may cause our actual results to differ materially from those expressed or implied by our forward-looking statements. The forward-looking statements in this prospectus are only predictions, and we may not actually achieve the plans, intentions or expectations included in our forward-looking statements. We have based these forward-looking statements largely on our current expectations and projections about future events and financial trends that we believe may affect our business, financial condition and results of operations. Because forward-looking statements are inherently subject to risks and uncertainties, some of which cannot be predicted or quantified, you should not rely on these forward-looking statements as predictions of future events. The events and circumstances reflected in our forward-looking statements may not be achieved or occur and actual results could differ materially from those projected in the forward-looking statements.

These forward-looking statements speak only as of the date of this prospectus. Except as required by applicable law, we do not plan to publicly update or revise any forward-looking statements contained in this prospectus after we distribute this prospectus, whether as a result of any new information, future events or otherwise.

USE OF PROCEEDS

We estimate that the net proceeds to us from our issuance and sale of shares of our common stock in this offering will be $ million, assuming an initial public offering price of $ per share, which is the midpoint of the estimated price range set forth on the cover of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. If the underwriters exercise in full their option to purchase additional shares, we estimate that the net proceeds from this offering will be $ million.

Each $1.00 increase or decrease in the assumed initial public offering price of $ per share would increase or decrease the net proceeds to us from this offering by $ million (or $ million if the underwriters exercise their option to purchase additional shares), assuming that the number of shares offered by us, as set forth on the cover of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions. We may also increase or decrease the number of shares we are offering. Each increase or decrease of 1.0 million in the number of shares of common stock offered by us at the assumed initial public offering price of $ per share would increase or decrease the net proceeds to us from this offering by $ million, after deducting estimated underwriting discounts and commissions.

We currently estimate that we will use the net proceeds from this offering, together with our existing cash, as follows:

- approximately $ to $ million to complete our ongoing Phase 3 clinical trial of LIQ861;
- approximately $ to $ million to advance LIQ865 through our planned Phase 2-enabling toxicology studies;
- approximately $ to $ million to fund operations supporting the development of LIQ861 and LIQ865;
- approximately $2.3 million to repay in full the outstanding promissory note issued to UNC, which has a maturity date of June 30, 2018 and bears interest at a rate equal to one-year LIBOR plus 3%, compounded annually; and
- the remainder for working capital and general corporate purposes.

This expected use of the net proceeds from this offering and our existing cash represents our intentions based upon our current plans and business conditions. The amounts and timing of our actual expenditures may vary significantly depending on numerous factors, including the progress of our development and commercialization efforts, the status of and results from clinical trials and actual results of operations, as well as any unforeseen cash needs. As a result, our management will retain broad discretion over the allocation of the net proceeds from this offering.

We may also use a portion of the remaining net proceeds to in-license, acquire or invest in complementary businesses, technologies, products or assets, although we have no current agreements, commitments or understandings to do so.

As of March 31, 2018, we had cash of $17.6 million. Based on our planned use of the net proceeds from this offering and our existing cash and current revenue forecasts, we estimate that such funds will be sufficient to enable us to support research and development needs and to fund our operating expenses and capital expenditure requirements until at least . We have based this estimate on assumptions that may prove to be wrong, and we could use our available capital resources sooner than we currently expect. We do not expect that the net proceeds from this offering and our existing cash will be sufficient to enable us to fund the completion of development and commercialization of any of our product candidates.

Pending our use of the net proceeds from this offering, we intend to invest the net proceeds in short-term, interest-bearing, investment-grade securities.

DIVIDEND POLICY

We currently expect to retain all future earnings, if any, for use in the operation and expansion of our business. We have never declared nor paid any dividends on our common stock and do not anticipate paying cash dividends to holders of our common stock in the foreseeable future. In addition, our loan agreement with our commercial lender prohibits our ability to pay dividends without the lender's prior written consent, with certain exceptions. See "Risk Factors — Because we do not anticipate paying any cash dividends on our common stock in the foreseeable future, capital appreciation, if any, will be your sole source of gain."

CAPITALIZATION

The following table sets forth our cash and our capitalization as of March 31, 2018:

- on an actual basis;
- on a pro forma basis to give effect to:
  - the conversion of all of our outstanding shares of preferred stock and Class B non-voting common stock into an aggregate of shares of our common stock, which will occur automatically upon the closing of this offering; and
  - the filing and effectiveness of our amended and restated certificate of incorporation upon the closing of this offering; and
- on a pro forma as adjusted basis to give further effect to our issuance and sale of shares of our common stock in this offering at an assumed initial offering price of $ per share, which is the midpoint of the estimated price range set forth on the cover of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us, and our use of approximately $2.3 million of the proceeds therefrom to repay debt as described in "Use of Proceeds."

You should read the information in this "Capitalization" section in conjunction with our financial statements and the related notes appearing at the end of this prospectus and the "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Use of Proceeds' sections and other financial information contained in this prospectus.

	As of March 31, 2018		
	Actual	Pro forma	Pro forma as adjusted
	(in thousands, except share and per share data)		
Cash	$ 17,594	$	$
Long-term debt, including current portion	$ 12,358	$	$
Capital leases, including current portion	926		
Stockholders' deficit:			
Convertible preferred stock, $0.001 par value; 184,209,616 shares authorized, 134,112,438 shares issued and outstanding, actual; no shares authorized, issued or outstanding, pro forma and pro forma as adjusted	134		
Common stock, $0.001 par value; 265,330,664 shares authorized, 10,452,883 shares issued and outstanding, actual; shares authorized, shares issued and outstanding, pro forma; shares authorized, shares issued and outstanding, pro forma as adjusted	10		
Preferred stock, $0.001 par value; no shares authorized, issued or outstanding, actual; shares authorized, no shares issued or outstanding, pro forma and pro forma as adjusted	—		
Additional paid-in capital	134,055		
Accumulated deficit	(141,426)		
Total stockholders' (deficit) equity	(7,227)		
Total capitalization	$ 6,057	$	$

Our cash and our capitalization following the completion of this offering will depend on the actual initial public offering price and other terms of this offering determined at pricing. Each $1.00 increase or decrease in the assumed initial public offering price of $ per share, which is the midpoint of the estimated price range set forth on the cover of this prospectus, would increase or decrease the pro forma as adjusted amount of each of cash, additional paid-in capital, total stockholders' equity and total capitalization by $ million, assuming that the number of shares offered by us, as set forth on the cover of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. Each increase or decrease of 1.0 million in the number of shares we are offering at the assumed initial public offering price of $ per share would increase or decrease the pro forma as adjusted amount of each of cash, additional paid-in capital, total stockholders' equity and total capitalization by $ million.

The table above does not include:

- 23,783,999 shares of common stock issuable upon the exercise of stock options outstanding as of March 31, 2018, with a weighted average exercise price of $0.45 per share;
- shares of common stock issuable upon the exercise of stock options granted after March 31, 2018, with a weighted average exercise price of $ per share;
- 2,146,767 shares of common stock issuable upon the vesting of restricted stock units granted on March 7, 2018 to Kevin Gordon, our President and Chief Financial Officer;
- 4,394,914 shares of common stock issuable upon the exercise of warrants outstanding as of March 31, 2018, with a weighted average exercise price of $0.0008 per share;
- an aggregate of shares of common stock issuable upon the exercise of stock options to be granted to certain of our officers and directors on the date of execution of the underwriting agreement under the 2018 Plan, assuming we sell shares in this offering, at an exercise price equal to the initial public offering price per share;
- shares of common stock issuable upon the vesting of restricted stock units to be granted to Mr. Gordon on the date of execution of the underwriting agreement pursuant to his employment agreement, assuming we sell shares in this offering;
- an additional 5,915,157 shares of common stock reserved for issuance under the Liquidia Technologies, Inc. 2016 Equity Incentive Plan, as amended, or the 2016 Plan, as of March 31, 2018, which shares will no longer be reserved following this offering; and
- an additional shares of common stock that will be made available for future issuance under the 2018 Plan upon the effectiveness of the registration statement of which this prospectus forms a part.

DILUTION

If you invest in our common stock in this offering, your ownership interest will be diluted immediately to the extent of the difference between the initial public offering price per share of our common stock and the pro forma as adjusted net tangible book value per share of our common stock immediately after this offering. Net tangible book value per share represents our total tangible assets less our total liabilities, divided by the number of shares of common stock then issued and outstanding.

Our net tangible book value as of March 31, 2018 was $(7.2) million, or $(0.69) per share of common stock.

On a pro forma basis, after giving effect to the conversion of all of our preferred stock outstanding as of March 31, 2018 into an aggregate of shares of common stock upon the closing of this offering, our pro forma net tangible book value as of March 31, 2018 would have been $ million, or $ per share of common stock.

After giving effect to the issuance and sale by us of shares of common stock in this offering at an assumed initial public offering price of $ per share, which is the midpoint of the estimated price range set forth on the cover of this prospectus, after deducting underwriting discounts and commissions and estimated offering expenses payable by us, and our use of approximately $2.3 million of the proceeds therefrom to repay debt as described in "Use of Proceeds," our pro forma as adjusted net tangible book value as of March 31, 2018 would have been $ million, or $ per share. This amount represents an immediate increase in pro forma as adjusted net tangible book value of $ per share to our existing stockholders and an immediate dilution in pro forma as adjusted net tangible book value of $ per share to new investors purchasing common stock in this offering at the assumed initial public offering price. We determine dilution by subtracting the pro forma as adjusted net tangible book value per share of common stock after this offering from the amount of cash that a new investor paid for a share of common stock.

The following table illustrates this dilution to new investors on a per share basis:

Assumed initial public offering price per share		$
Historical net tangible book value per share as of March 31, 2018	$ (0.69)	
Increase in net tangible book value per share attributable to the pro forma adjustments described above		
Pro forma net tangible book value per share before giving effect to this offering		
Increase in pro forma net tangible book value per share attributable to this offering		
Pro forma as adjusted net tangible book value per share after this offering		
Dilution per share to new investors in this offering		$

The pro forma as adjusted information discussed above is illustrative only and will depend on the actual initial public offering price and other terms of this offering determined at pricing. A $1.00 increase or decrease in the assumed initial public offering price of $ per share, which is the midpoint of the estimated price range set forth on the cover of this prospectus, would increase or decrease the pro forma as adjusted net tangible book value after this offering by $ million, the pro forma as adjusted net tangible book value per share by $, and dilution per share to new investors purchasing shares in this offering by $, assuming the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting underwriting discounts and commissions. We may

also increase or decrease the number of shares we are offering. An increase of 1.0 million in the number of shares offered by us, as set forth on the cover page of this prospectus, would increase the pro forma as adjusted net tangible book value per share after this offering by $ and decrease the dilution per share to new investors participating in this offering by $, assuming no change in the assumed initial public offering price and after deducting estimated underwriting discounts and commissions. A decrease of 1.0 million in the number of shares offered by us, as set forth on the cover page of this prospectus, would decrease the pro forma as adjusted net tangible book value per share after this offering by $ and increase the dilution per share to new investors participating in this offering by $, assuming no change in the assumed initial public offering price and after deducting estimated underwriting discounts and commissions.

If the underwriters exercise their option in full to purchase additional shares of common stock in this offering, the pro forma as adjusted net tangible book value per share after the offering would be $, the increase in the pro forma net tangible book value per share to existing stockholders would be $ and the dilution per share to new investors purchasing shares in this offering would be $.

If any shares are issued upon exercise of outstanding options, or if additional options or other equity awards are granted and exercised or become vested, or if other issuances of common stock are made, you will experience further dilution.

The following table summarizes as of March 31, 2018, on the pro forma as adjusted basis described above, the number of our shares of common stock purchased from us and the total consideration and the average price per share paid to us by existing stockholders and by new investors purchasing our common stock in this offering at an assumed initial public offering price of $ per share, the midpoint of the estimated price range set forth on the cover of this prospectus, before deducting underwriting discounts and commissions and estimated offering expenses payable by us.

	Shares Purchased		Total Consideration		Average Price Per Share
	Number	Percent	Amount	Percent	
Existing stockholders		%	$	%	$
New investors					
Total		100.0%	$	100.0%	

A $1.00 increase or decrease in the assumed initial public offering price of $ per share, which is the midpoint of the estimated price range set forth on the cover of this prospectus, would increase or decrease the total consideration paid by new investors in this offering by $ million and, in the case of an increase, would increase the percentage of total consideration paid by new investors by percentage points and, in the case of a decrease, would decrease the percentage of total consideration paid by new investors by percentage points, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same. An increase or decrease of 1.0 million in the number of shares offered by us, as set forth on the cover page of this prospectus, would increase or decrease the total consideration paid by new investors by $ million and, in the case of an increase, would increase the percentage of total consideration paid by new investors by percentage points and, in the case of a decrease, would decrease the percentage of total consideration paid by new investors by percentage points, assuming no change in the assumed initial public offering price per share.

The table above assumes no exercise of the underwriters' option to purchase additional shares in this offering. If the underwriters exercise their option to purchase additional shares of common stock in full, the number of shares of common stock held by existing stockholders would decrease to % of the total number of shares of common stock outstanding after this offering, and the number of shares held by new investors would increase to % of the total number of shares of common stock outstanding after this offering.

The number of shares purchased from us by existing stockholders is based on shares of common stock outstanding as of March 31, 2018, after giving effect to the automatic conversion of all of our outstanding preferred shares into shares of common stock upon the closing of this offering, and excludes:

- 23,783,999 shares of common stock issuable upon the exercise of stock options outstanding as of March 31, 2018, with a weighted average exercise price of $0.45 per share;
- shares of common stock issuable upon the exercise of stock options granted after March 31, 2018, with a weighted average exercise price of $ per share;
- 2,146,767 shares of common stock issuable upon the vesting of restricted stock units granted on March 7, 2018 to Kevin Gordon, our President and Chief Financial Officer;
- 4,394,914 shares of common stock issuable upon the exercise of warrants outstanding as of March 31, 2018, with a weighted average exercise price of $0.0008 per share;
- an aggregate of shares of common stock issuable upon the exercise of stock options to be granted to certain of our officers and directors on the date of execution of the underwriting agreement under the 2018 Plan, assuming we sell shares in this offering, at an exercise price equal to the initial public offering price per share;
- shares of common stock issuable upon the vesting of restricted stock units to be granted to Mr. Gordon on the date of execution of the underwriting agreement pursuant to his employment agreement, assuming we sell shares in this offering;
- an additional 5,915,157 shares of common stock reserved for issuance under the Liquidia Technologies, Inc. 2016 Equity Incentive Plan, as amended, or the 2016 Plan, as of March 31, 2018, which shares will no longer be reserved following this offering; and
- an additional shares of common stock that will be made available for future issuance under the 2018 Plan upon the effectiveness of the registration statement of which this prospectus forms a part.

SELECTED FINANCIAL DATA

The selected statement of operations data for the years ended December 31, 2016 and 2017 and the balance sheet data as of December 31, 2016 and 2017 are derived from our audited financial statements included elsewhere in this prospectus. The selected statement of operations data for the three months ended March 31, 2017 and 2018 and the balance sheet data as of March 31, 2018 have been derived from our unaudited interim financial statements included elsewhere in this prospectus. Other than for the impacts of adoption of accounting standards, the unaudited interim financial statements were prepared on a basis consistent with our audited financial statements and reflect, in the opinion of management, all adjustments of a normal recurring nature that are necessarily for the fair statement of our financial position as of March 31, 2018 and our results of operations for the three months ended March 31, 2017 and 2018. Our historical results are not necessarily indicative of the results that may be expected in any future period, and the results for the three months ended March 31, 2018 are not necessarily indicative of results to be expected for the full year ending December 31, 2018, or any other period.

The following selected financial data should be read with "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our financial statements and related notes included elsewhere in this prospectus. The selected financial data in this section are not intended to replace the financial statements and are qualified in their entirety by the financial statements and related notes included elsewhere in this prospectus.

	Year Ended December 31,		Three Months Ended March 31,	
	2016	2017	2017	2018
Statement of operations data:				
Revenues	$ 13,216,989	$ 7,258,123	$ 1,639,176	$ 925,970
Costs and expenses:				
Cost of sales	918,778	319,759	79,940	27,049
Research and development	23,319,886	24,753,876	6,175,557	7,626,701
General and administrative	4,841,128	10,212,774	2,151,078	2,149,725
Total costs and expenses	29,079,792	35,286,409	8,406,575	9,803,475
Loss from operations	(15,862,803)	(28,028,286)	(6,767,399)	(8,877,505)
Other income (expense):				
Interest income	14,906	268	151	—
Interest expense	(85,865)	(13,010,475)	(2,246,447)	(17,876,795)
Derivative and warrant fair value adjustment	—	11,884,253	(823,051)	(753,887)
Total other income (expense), net	(70,959)	(1,125,954)	(3,069,347)	(18,630,682)
Net loss	(15,933,762)	(29,154,240)	(9,836,746)	(27,508,187)
Other comprehensive loss	—	—	—	—
Comprehensive loss	$ (15,933,762)	$ (29,154,240)	$ (9,836,746)	$ (27,508,187)
Net loss per share, basic and diluted	$ (2.16)	$ (3.08)	$ (1.05)	$ (2.63)
Weighted average shares outstanding, basic and diluted	7,361,596	9,475,083	9,329,157	10,441,880
Pro forma net loss per share, basic and diluted (unaudited)		$		$
Pro forma weighted-average common shares outstanding, basic and diluted (unaudited)		$		$

	As of December 31, 2016	As of December 31, 2017	As of March 31, 2018
Balance Sheet Data:			
Cash	$ 1,438,712	$ 3,418,979	$ 17,593,796
Total assets	8,486,533	14,843,602	29,228,260
Total debt	8,113,660	21,165,131	12,358,368
Capital stock and additional paid-in capital	66,068,868	79,721,075	134,199,601
Accumulated deficit	(84,259,071)	(113,413,311)	(141,426,223)
Total stockholders' deficit	(18,245,203)	(33,692,236)	(7,226,622)

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

You should read the following discussion and analysis of our financial condition and results of operations together with our financial statements and related notes appearing in this prospectus. Some of the information contained in this discussion and analysis or set forth elsewhere in this prospectus, including information with respect to our plans and strategy for our business and related financing, includes forward-looking statements that involve risks and uncertainties. As a result of many factors, including those factors set forth in the "Risk Factors" section of this prospectus, our actual results could differ materially from the results described in, or implied by, the forward-looking statements contained in the following discussion and analysis. See "Cautionary Note Regarding Forward-Looking Statements."

Overview

We are a late-stage clinical biopharmaceutical company focused on the development and commercialization of human therapeutics using our proprietary PRINT technology to transform the lives of patients. PRINT is a particle engineering platform that enables precise production of uniform drug particles designed to improve the safety, efficacy and performance of a wide range of therapies. We are currently focused on the development of two product candidates for which we hold worldwide commercial rights: LIQ861 for the treatment of pulmonary arterial hypertension, or PAH, and LIQ865 for the treatment of local post-operative pain. Our lead product candidate, LIQ861, is being evaluated in a Phase 3 clinical trial as a potential treatment for PAH. LIQ861 is an inhaled dry powder formulation of treprostinil that is administered using a convenient, disposable dry powder inhaler, or DPI. Treprostinil is a synthetic analog of prostacyclin, a vasoactive mediator essential to normal lung function, is deficient in patients with PAH. We believe that LIQ861 has the potential to improve the therapeutic profile of existing formulations of treprostinil by enhancing deep-lung delivery and achieving higher dose levels than current inhaled therapies. We have completed both Phase 1a and Phase 1b clinical trials of our second product candidate, LIQ865, for the treatment for local post-operative pain. LIQ865 is our proprietary injectable, sustained-release formulation of bupivacaine, a non-opioid pain medicine. We have designed LIQ865 to be administered as a single treatment for the management of local post-operative pain for three to five days after a procedure, which we believe, if approved, has the potential to provide significantly longer post-operative pain relief compared to currently marketed formulations of bupivacaine. We expect to initiate Phase 2-enabling toxicology studies for LIQ865 in the second half of 2018.

In addition to developing our two current product candidates, we license our PRINT technology to leading pharmaceutical companies seeking to develop their own potential drug and biologic therapies. We believe that our PRINT technology can be applied to a wide range of therapeutic areas, molecule types and routes of administration. We are currently focused on developing product candidates that we believe are eligible to be approved under the 505(b)(2) regulatory pathway, which can be capital efficient and potentially enable a shorter time to approval, as it allows us to rely in part on existing knowledge of the safety and efficacy of the relevant reference listed drugs to support our applications for approval in the United States. If any of our product candidates are approved, we intend to manufacture them using in-house capabilities. Where appropriate, we will rely on third-party CMOs to produce, package and distribute our approved drug products on a commercial scale.

We have not generated any revenue to date from the sale of pharmaceutical products, and we have historically financed our operations in large part with an aggregate of $116.9 million of gross proceeds from sales of our convertible preferred stock, convertible promissory notes, $10.0 million in term loans from a bank and a $2.1 million loan from UNC. We do not expect to generate significant product revenue unless and until we obtain marketing approval for and commercialize LIQ861, LIQ865 or one of our other future product candidates.

Since our inception, we have incurred significant operating losses. Our net loss was $15.9 million and $29.2 million for the years ended December 31, 2016 and 2017, respectively, and $27.5 million for the three months ended March 31, 2018. As of March 31, 2018, we had an accumulated deficit of $141.4 million. We expect to incur significant expenses and operating losses for the foreseeable future as we advance our product candidates through clinical trials, and seek regulatory approval and pursue commercialization of any approved product candidate. In addition, if we obtain marketing approval for any of our product candidates, we expect to incur significant commercialization expenses related to product manufacturing, marketing, sales and distribution. In addition, we may incur expenses in connection with the in-license or acquisition of additional product candidates. Furthermore, upon the closing of this offering, we expect to incur additional costs associated with operating as a public company, including significant legal, accounting, investor relations and other expenses that we did not incur as a private company.

As a result, we will need substantial additional funding to support our continuing operations and pursue our growth strategy. Until such time as we can generate significant revenue from product sales, if ever, we expect to finance our operations through the sale of equity, debt financings or other capital sources, including potential collaborations with other companies or other strategic transactions. We may be unable to raise additional funds or enter into such other agreements or arrangements when needed on favorable terms, or at all. If we fail to raise capital or enter into such agreements as, and when, needed, we may have to significantly delay, scale back or discontinue the development and commercialization of one or more of our product candidates or delay our pursuit of potential in-licenses or acquisitions.

As of March 31, 2018, we had cash of $17.6 million. In February 2018, we received proceeds of $25.6 million from the sale of our Series D preferred stock and related rights offering. We believe that the anticipated net proceeds from this offering, together with our existing cash, will enable us to fund our operating expenses and capital expenditure requirements until at least . We have based this estimate on assumptions that may prove to be wrong, and we could utilize our available capital resources sooner than we expect. See " — Liquidity and Capital Resources."

Our Collaborations

Our only revenue, which has been derived from collaborating and licensing our proprietary PRINT technology to pharmaceutical companies, amounted to $13.2 million and $7.3 million for the years ended December 31, 2016 and 2017, respectively, and $1.6 million and $0.9 million for the three months ended March 31, 2017 and 2018, respectively, or 92% and 47%, respectively, of our total revenue during those periods. GSK accounted for $11.8 million and $6.1 million, for the years ended December 31, 2016 and 2017, respectively, or 90% and 84%, respectively, of our total revenue. Our collaborators make up-front fees or technology access payments, pay us to achieve clinical milestones, pay us fees to develop their drug products through research and development services like particle formulation and manufacturing and will pay us royalties upon ultimate commercial sales of the related products.

GSK

We have actively collaborated with GSK on the use of our PRINT technology in respiratory disease since 2012.

In June 2012, we entered into a Vaccines Collaboration and Option Agreement with GSK, or the GSK VCO Agreement, to collaborate on research regarding the application of our PRINT technology to specified inhaled therapies. In March 2015, GSK made a one-time payment of $5.0 million to extend the agreement for 13 months through April 30, 2016, and such payment was amortized into revenue over that extension period. We and GSK mutually agreed to terminate this agreement in April 2016, and we will not recognize any further revenues under this agreement. Revenues from research and development services under the GSK VCO Agreement amounted to $1.3 million and $0 for the years ended December 31, 2016 and 2017, respectively.

In June 2012, we also entered into an Inhaled Collaboration and Option Agreement with GSK, or the GSK ICO Agreement, under which we granted GSK exclusive options and licenses to further develop and

commercialize inhaled therapies using our PRINT technology. In September 2015, GSK exercised its option to obtain an exclusive, worldwide license to certain of our know-how and patents relating to our PRINT technology, for the purpose of, among others, conducting preclinical studies of inhaled therapeutics developed, manufactured or otherwise produced using our PRINT technology. In consideration for GSK's exercise of this option, we received a non-refundable up-front payment of $15.0 million, which amount is being amortized into revenue over a period of time based on the estimated remaining development period and on a similar basis as research and development services are expected to be performed, a period of 54 months as of March 31, 2018. Under the terms of the GSK ICO Agreement, we are also entitled to certain milestone payments aggregating up to $158 million upon the achievement of specified milestone events, and tiered royalties on the worldwide sales of the licensed products at percentages in the mid-single digits. In February 2016, we received a $3.0 million payment from GSK upon the achievement of a clinical development milestone. We recognized the full amount of this payment as revenue in the year ended December 31, 2016. Revenues from research and development services under the GSK ICO Agreement amounted to $2.9 million and $3.1 million for the years ended December 31, 2016 and 2017, respectively, and $0.8 million and $0.2 million for the three months ended March 31, 2017 and 2018, respectively.

In December 2017, GSK informed us of its modified plans under the GSK ICO Agreement that reduced its requirements and budget for our research and development support in 2018. As a result, we expect revenues from research and development services under the GSK ICO Agreement to be less than $250,000 during 2018. In response, in January 2018, we reduced our research and development workforce accordingly, and we anticipate that we will incur approximately $400,000 in expense relating to the workforce reduction.

We also entered into other engagements with GSK under the GSK ICO Agreement, primarily for platform research services. As of April 30, 2018, GSK is conducting a Phase 1 clinical trial of an inhaled COPD product candidate that is formulated as an inhaled dry powder using the PRINT technology.

G&W Laboratories

In June 2016, we entered into a development and license agreement, or the G&W Labs Agreement, with G&W Laboratories, Inc., or G&W Labs, to develop multiple products for topical delivery in dermatology using our PRINT technology. We received the first non-refundable up-front fee of $1.0 million under this agreement in June 2016, which amount is being amortized into revenue over a period of time based upon the estimated remaining development period and on a similar basis as research and development services are expected to be performed, a period of 63 months as of March 31, 2018. We began performing research and development services under this agreement in July 2016. In April 2018, we and G&W Labs mutually agreed to terminate the G&W Labs Agreement.

Gates Foundation

In 2011, we entered into a collaboration agreement with the Bill & Melinda Gates Foundation, primarily for research services related to developing vaccines targeted at developing markets. We received an up-front fee of $1.0 million under this agreement, which we recognized as revenue through December 2017. As of the date of this prospectus, we are not performing any services under this collaboration agreement and do not expect to recognize any further revenue under the agreement.

Components of Statements of Operations

Revenue

Our revenue is primarily derived from collaborating and licensing our proprietary PRINT technology to pharmaceutical companies. In the future, we also expect to derive our revenue from our own pharmaceutical products. We report financial information in the following two business segments:

Pharmaceutical Products. We utilize our proprietary PRINT technology to develop novel product candidates, such as LIQ861 and LIQ865. We have not commenced the commercialization of any pharmaceutical products and have not recognized any product revenues to date for this business segment. We intend to commercialize LIQ861 independently in the United States and to evaluate our commercialization and development plans for LIQ865. Outside of the United States, we intend to pursue the regulatory approval and commercialization of LIQ861 and LIQ865 with leading pharmaceutical companies with regional expertise. Revenues from these licensing arrangements would be recognized in this segment. In addition, if LIQ861 or LIQ865 is approved for marketing, we expect to recognize any revenues from sales of that product in this segment.

Partnering and Licensing. We also utilize our proprietary PRINT technology to enable the development of product candidates by other pharmaceutical companies. We perform research and development services for third parties in the areas of particle formulation and manufacturing and charge market billing rates. We typically receive up-front fees or technology access payments, as well as milestone payments for each phase of clinical achievement. If any of these drug products achieve commercialization, we also expect to be eligible to receive royalties from sales of those drug products. For the years ended December 31, 2016 and 2017 and the three months ended March 31, 2018, all of our revenue from our license and collaboration agreements described above was part of our Partnering and Licensing segment.

For the years ended December 31, 2016 and 2017, the majority of our revenue from collaborating and licensing our proprietary PRINT technology to pharmaceutical companies was derived under two separate agreements with GSK, which we refer to as the GSK VCO Agreement and the GSK ICO Agreement. These two arrangements with GSK accounted for $11.8 million and $6.1 million in revenue for the years ended December 31, 2016 and 2017, respectively, representing 90% and 84% of our total revenue for the years ended December 31, 2016 and 2017, respectively. For the three months ended March 31, 2017 and 2018, a substantial amount of our revenue from collaborating and licensing our proprietary PRINT technology to pharmaceutical companies was derived from the GSK ICO Agreement. This arrangement with GSK accounted for $1.5 million and $0.4 million in revenue for the three months ended March 31, 2017 and 2018, respectively, representing 92% and 47% of our total revenue for the three months ended March 31, 2017 and 2018, respectively. This revenue comprised billings for research and development services, milestone payments and amortization of deferred revenue from up-front payments.

Cost of Sales

Cost of sales consists of the amortization of license fees owed to UNC upon our receipt of licensing revenues. See "Business — Our Collaboration and Licensing Agreements — The University of North Carolina at Chapel Hill" for further details. The amortization period is the same as the period over and in the same manner in which the related revenue is recognized.

Research and Development Expenses

Research and development expense consists of expenses incurred in connection with the development of our product candidates. We expense research and development costs as incurred. These expenses include:

- expenses incurred under agreements with CROs, as well as investigative sites and consultants that conduct our clinical trials and preclinical studies;
- manufacturing scale-up expenses and the cost of acquiring and manufacturing preclinical and clinical trial materials and commercial materials, including manufacturing validation batches;
- outsourced professional scientific development services;

- employee-related expenses, which include salaries, benefits and stock-based compensation for personnel in research and development functions;
- expenses relating to regulatory activities, including filing fees paid to regulatory agencies;
- laboratory materials and supplies used to support our research activities; and
- allocated expenses for utilities and other facility-related costs.

Research and development activities are central to our business model. Product candidates in later stages of clinical development generally have higher development costs than those in earlier stages of clinical development, primarily due to the increased size and duration of later-stage clinical trials. We expect our research and development expenses to increase significantly over the next several years as we increase personnel costs, including stock-based compensation, conduct our ongoing Phase 3 clinical trial of LIQ861, continue the development of LIQ865 and conduct other clinical trials and prepare regulatory filings for our product candidates.

The successful development of our product candidates is highly uncertain. At this time, we cannot reasonably estimate or know the nature, timing and costs of the efforts that will be necessary to complete the remainder of the development of, or when, if ever, material net cash inflows may commence from any of our product candidates. This uncertainty is due to the numerous risks and uncertainties associated with the duration and cost of clinical trials, which vary significantly over the life of a project as a result of many factors, including:

- the number of clinical sites included in the trials;
- the length of time required to enroll suitable patients;
- the number of patients that ultimately participate in the trials;
- the number of doses patients receive;
- the duration of patient follow-up; and
- the results of our clinical trials.

Our expenditures are subject to additional uncertainties, including the terms and timing of regulatory approvals, and the expense of filing, prosecuting, defending and enforcing any patent claims or other intellectual property rights. We may never succeed in achieving regulatory approval for any of our product candidates. We may obtain unexpected results from our clinical trials. We may elect to discontinue, delay or modify clinical trials of some product candidates or focus on others. A change in the outcome of any of these variables with respect to the development of a product candidate could mean a significant change in the costs and timing associated with the development of that product candidate. For example, if the FDA or other regulatory authorities were to require us to conduct clinical trials beyond those that we currently anticipate, or if we experience significant delays in enrollment in any of our clinical trials, we could be required to expend significant additional financial resources and time on the completion of clinical development. Drug commercialization will take several years and millions of dollars in development costs.

General and Administrative Expenses

General and administrative expenses consist principally of salaries and related costs for personnel in executive, administrative, finance and legal functions, including stock-based compensation, travel expenses and recruiting expenses. Other general and administrative expenses include facility related costs, patent filing and prosecution costs and professional fees for marketing, legal, auditing and tax services and insurance costs.

We anticipate that our general and administrative expenses will increase as a result of increased personnel costs, including stock-based compensation, expanded infrastructure and higher consulting, legal and tax-related services associated with maintaining compliance with stock exchange listing and SEC requirements, accounting and investor relations costs, and director and officer insurance premiums associated with being a public company. We anticipate the additional costs for these services will increase our general and administrative expenses by approximately $1.5 million to $2.0 million on an annual basis. Additionally, if and when we believe a regulatory approval of a product candidate appears likely, we

anticipate an increase in payroll and expense as a result of our preparation for commercial operations, especially as it relates to the sales and marketing of our product candidate.

Other Income (Expense)

Other income (expense) is comprised primarily of interest expense and derivative and warrant fair value adjustments. Interest expense consists of interest charges on capital leases and long-term debt. These charges include monthly recurring interest on such obligations in addition to non-cash charges. Non-cash charges include the accrual of interest expense at the end of each reporting period in addition to the expensing of discounts on long-term debt to interest expense. Derivative and warrant fair value adjustments consist of the unrealized gains and losses as a result of marking these financial instruments to fair market value at the end of each reporting period.

Results of Operations

Three Months ended March 31, 2017 and 2018

The following table summarizes our results of operations:

	Three Months Ended March 31,	
	2017	2018
	(in thousands)	
Revenues	$ 1,639	$ 926
Costs and expenses:		
Cost of sales	80	27
Research and development	6,176	7,626
General and administrative	2,151	2,150
Total costs and expenses	8,407	9,803
Loss from operations	(6,768)	(8,877)
Other income (expense):		
Interest income	—	—
Interest expense	(2,246)	(17,877)
Derivative and warrant fair value adjustments	(823)	(754)
Total other income (expense)	(3,069)	(18,631)
Net loss	$ (9,837)	$ (27,508)

Revenues

Revenues were $0.9 million for the three months ended March 31, 2018, compared to $1.6 million for the three months ended March 31, 2017. The decrease of $0.7 million, or 43.8%, was due to a change in estimates extending the amortization period for deferred revenue, lower research and development services performed and the adoption of Accounting Standards Codification, or ASC, 606, *Revenue from Contracts with Customers*, or ASC 606. Our revenues attributable to the GSK ICO Agreement were $0.4 million and our revenues attributable to other customers was $0.5 million during the three months ended March 31, 2018. Under the GSK ICO Agreement, we received an up-front payment of $15.0 million in 2015. We are amortizing this payment into revenue over a period of approximately seven years, resulting in revenues of $0.2 million during the three months ended March 31, 2018. Effective January 1, 2018, we adopted ASC 606. In addition, management revised the estimated performance periods under our collaboration agreements to reflect the current circumstances such that the weighted average time period that management was amortizing up-front and milestone payments was increased from approximately 29 months to approximately 48 months. The combined effect of adoption of ASC 606 and the change in estimates was

a decrease in revenue for the three months ended March 31, 2018 by $0.5 million as compared to the three months ended March 31, 2017. In addition, we performed research and development services under these agreements and recognized revenues of $0.7 million for such services during the three months ended March 31, 2018 as compared to $0.8 million during the three months ended March 31, 2017.

Cost of Sales

Our cost of sales was $27,049 for the three months ended March 31, 2018, compared to $79,940 for the three months ended March 31, 2017. Cost of sales represents sub-licensing fees paid to UNC resulting from our recognition of licensing revenue from intellectual property that we in-licensed from UNC. This amount, like the corresponding revenue, was attributable to our Partnering and Licensing segment.

Research and Development Expenses

Our research and development expenses were $7.6 million for the three months ended March 31, 2018, compared to $6.2 million for the three months ended March 31, 2017. The increase of $1.4 million, or 22.6%, was due to the commencement of the Phase 3 clinical trial of LIQ861 in late December 2017. Research and development expenses consisted of $5.0 million from the Pharmaceutical Products segment, of which $4.7 million and $0.3 million were attributable to our ongoing development of LIQ861 and LIQ865, respectively, $0.4 million from the Partnering and Licensing segment, and $2.2 million from general research and development that was not directly related to a particular segment.

General and Administrative Expenses

Our general and administrative expenses were $2.1 million for the three months ended March 31, 2018, compared to $2.2 million for the three months ended March 31, 2017. General and administrative expenses are mainly the result of personnel expenses, including stock-based compensation, as well as legal and consulting fees and tax expense.

Loss from Operations

We recorded a loss from operations of $8.9 million in the three months ended March 31, 2018, compared to $6.8 million for the three months ended March 31, 2017. The increase of $2.1 million, or 30.9%, was primarily due to a decrease in revenues and an increase in research and development expenses during the three months ended March 31, 2018 as compared to the three months ended March 31, 2017.

Other Income (Expense)

Interest income was less than $1,000 for the three months ended March 31, 2017 and 2018.

Interest expense was $17.9 million for the three months ended March 31, 2018, compared to $2.2 million for the three months ended March 31, 2017. During the three months ended March 31, 2018, we had higher levels of debt, including convertible notes of $27.4 million, bank borrowings of $8.8 million, and amounts owed to CSC and UNC of $1.6 million and $2.3 million, respectively. The increase in interest expense of $15.7 million was primarily due to amortization of discounts on convertible notes of $17.6 million. The unamortized discounts on convertible notes of $17.6 million as of December 31, 2017 was being amortized through the maturity date of the notes, which was December 31, 2018. The amortization of the discounts was accelerated by the early conversion of the notes into Series D preferred stock in February 2018.

Derivative and warrant fair value adjustments were consistent for the three months ended March 31, 2018, as compared to the three months ended March 31, 2017.

Years ended December 31, 2016 and 2017

The following table summarizes our results of operations:

	Year ended December 31,	
	2016	2017
	(in thousands)	
Revenues	$ 13,217	$ 7,258
Costs and expenses:		
Cost of sales	919	320
Research and development	23,320	24,754
General and administrative	4,841	10,212
Total costs and expenses	29,080	35,286
Loss from operations	(15,863)	(28,028)
Other income (expense):		
Interest income	15	—
Interest expense	(86)	(13,010)
Derivative and warrant fair value adjustments	—	11,884
Total other income (expense)	(71)	(1,126)
Net loss	$ (15,934)	$ (29,154)

Revenues

Revenues were $7.3 million for the year ended December 31, 2017, compared to $13.2 million for the year ended December 31, 2016. The decrease of $6.0 million, or 45%, was due to a decrease of $3.0 million in non-refundable milestone payments recognized as revenue in 2016 from the GSK ICO Agreement and a decrease of $2.9 million related to revenue recognized in 2016 from the GSK VCO Agreement which was terminated in April 2016. Our revenues of $7.3 million in the year ended December 31, 2017 consisted primarily of $6.1 million attributable to the GSK ICO Agreement. Under the GSK ICO Agreement, we received an up-front payment of $15.0 million in 2015. We are amortizing this payment into revenue over a five-year period, resulting in revenues of $3.0 million during the year ended December 31, 2017. In addition, we performed research and development services under this agreement and recognized revenues of $3.1 million for such services during the year ended December 31, 2017. In addition to GSK, in June 2016, we entered into the G&W Labs Agreement under which we received an up-front payment of $1.0 million. We are amortizing this payment into revenue over a five-year period, resulting in revenue of $0.2 million during the year ended December 31, 2017. In addition, we performed research and development services under this agreement and recognized revenues of $0.2 million and $0 for such services during the years ended December 31, 2016 and 2017, respectively. In addition, in February 2011, we entered into a collaboration agreement with the Bill & Melinda Gates Foundation, primarily for research services related to developing vaccines targeted at developing markets under which we received an up-front payment of $1.0 million. We are amortizing this payment into revenue over a 6.75 year period, resulting in revenue of $0.2 million and $0.2 million during the years ended December 31, 2016 and 2017, respectively. In addition, we performed research and development services under various collaboration agreements with other companies and recognized revenue of $0.9 million and $0.8 million for such services during the years ended December 31, 2016 and 2017, respectively.

Cost of Sales

Our cost of sales was $0.3 million for the year ended December 31, 2017, compared to $0.9 million for the year ended December 31, 2016. The decrease of $0.6 million, or 65%, was due to a $0.3 million

license fee paid to UNC in 2016 related to the $3.0 million non-refundable milestone payment from the GSK ICO Agreement, and a $0.3 million license fee amortization in 2016 related to the GSK VCO Agreement, neither of which recurred in 2017. Cost of sales represents sub-licensing fees paid to UNC resulting from our recognition of licensing revenue from intellectual property that we in-licensed from UNC. This amount was attributable to our Partnering and Licensing segment.

Research and Development Expenses

Our research and development expenses were $24.8 million for the year ended December 31, 2017, compared to $23.3 million for the year ended December 31, 2016. The increase of $1.5 million, or 6%, was due to the completion of a Phase 1 study and preparation of a Phase 3 study of LIQ861, in addition to the completion of one Phase 1 study and ongoing work on a second Phase 1 study for LIQ865. Research and development expenses consisted of $5.0 million from the Partnering and Licensing segment, $13.6 million from the Pharmaceutical Products segment, of which $8.4 million and $5.2 million were attributable to our ongoing development of LIQ861 and LIQ865, respectively, and $6.2 million from general research and development that was not directly related to a particular segment.

General and Administrative Expenses

Our general and administrative expenses were $10.2 million for the year ended December 31, 2017, compared to $4.8 million for the year ended December 31, 2016. The increase of $5.4 million, or 111%, was due to transaction costs related to our deferred potential initial public offering on a foreign exchange contemplated during 2017, and increases in staff and consultants. General and administrative expense are mainly the result of personnel expenses, including stock-based compensation, as well as legal and consulting fees and tax expense.

Loss from Operations

We recorded a loss from operations of $28.0 million in the year ended December 31, 2017, compared to $15.9 million for the year ended December 31, 2016. The increase of $12.1 million, or 77%, was primarily due to a decrease in revenues and an increase in general and administrative expenses during the year ended December 31, 2017.

Other Income (Expense)

Interest income was less than $1,000 for the year ended December 31, 2017 compared to $14,900 for the year ended December 31, 2016. The decrease of $14,600 was due to lower average balances in interest-bearing accounts during the year ended December 31, 2017.

Interest expense was $13.0 million for the year ended December 31, 2017, compared to $0.1 million for the year ended December 31, 2016. During 2017, we had higher levels of debt including convertible notes of $27.4 million, bank borrowings of $9.1 million, an amount owed to UNC of $2.3 million, and existing capital lease obligations of $0.9 million. The increase in interest expense of $12.9 million was primarily due to amortization of discount on convertible notes of $9.8 million, the expensing of debt issuance costs to interest expense of $1.4 million and the recognition of accrued interest on the convertible notes, bank borrowings and capital lease obligations of $1.8 million.

Derivative and warrant fair value adjustments were $11.9 million for the year ended December 31, 2017, compared to $0 for the year ended December 31, 2016. This increase was due to decreases in the fair value of derivatives and warrants of $9.9 million and $2.0 million, respectively, for the year ended December 31, 2017. Derivatives and warrants were issued in conjunction with convertible note financings during the year ended December 31, 2017. The decreases in the fair value of derivatives and warrants were primarily due to the impact of the Series D financing that closed in February 2018, the terms of which were known at December 31, 2017, which implied lower fair values for the derivatives and warrants than previously estimated.

Liquidity and Capital Resources

Overview

We have financed our growth and operations through a combination of funds generated from our licensing revenues, the issuance of convertible preferred stock and common stock, capital leases, bank borrowings and the issuance of convertible notes. Our principal uses of cash have been for working capital requirements and capital expenditures. We monitor our net operating cash flow and maintain a level of cash deemed adequate by our management for working capital purposes.

As of March 31, 2018, we had a stockholders' deficit of $7.2 million and working capital (defined as current assets less current liabilities) of $4.2 million. Our cash balance was $17.6 million as of March 31, 2018.

Sources of Liquidity

We have financed a portion of our working capital through debt instruments. We maintain a $10.0 million term loan facility with PWB for working capital purposes. As of March 31, 2018, we had fully utilized our facility with PWB. The facility is secured by all of our assets other than intellectual property. We may not encumber our intellectual property without the consent of PWB. The outstanding principal amount under the loan facility bears interest at 5.0% per annum. Of the current amount outstanding, the loan matures with respect to $3.0 million in January 2020, with the remainder being due and payable in October 2020. Our credit facility with PWB contains restrictions that limit our flexibility in operating our business. We may not, among other things, without the prior written consent of PWB, (a) pay any dividends or make any other distribution or payment on account of or in redemption, retirement or purchase of any capital stock except in certain prescribed circumstances, (b) create, incur, assume, guarantee or be or remain liable with respect to any indebtedness except certain permitted indebtedness or prepay any indebtedness, (c) replace or suffer the departure of our Chief Executive Officer or Chief Financial Officer without delivering written notification to PWB within 10 days of such change or (d) suffer a change on our Board which results in the failure of at least one partner of either NEA or Canaan or their respective affiliates to serve as a voting member. We have, in the past, breached multiple covenants in our loan and security agreement related to cash levels, reporting requirements and required periodic deliverables to PWB. PWB has provided waivers in relation to all such prior breaches. Furthermore, pursuant to our credit facility with PWB, we are required at all times to maintain a balance of cash at PWB of at least $8.0 million. The credit facility also contains a covenant related to the observation of materially adverse data in our Phase 3 clinical trial of LIQ861 on or before December 31, 2018.

During the year ended December 31, 2017 and the three months ended March 31, 2018, we had outstanding a promissory note to UNC. As of December 31, 2016 and 2017, the outstanding balance of this note payable was $2.2 million and $2.3 million, respectively. As of March 31, 2018, the outstanding balance of this note payable was $2.3 million. The note is unsecured and bears interest at a rate equal to one-year LIBOR plus 3%, compounded annually. The UNC Note is due and payable in full on June 30, 2018.

In a series of closings from January 9, 2017 to November 29, 2017, we issued and sold an aggregate of $27.4 million underlying a total of 27 unsecured subordinated convertible promissory notes, each accruing simple interest at a rate of 8.0% per annum.

In February 2018, we issued and sold an aggregate of 91,147,482 shares of Series D preferred stock at a price per share equal to $0.59808. Of the 31 investors that participated in this offering, 10 investors purchased an aggregate of 42,863,825 shares of Series D preferred stock for an aggregate purchase price of $25.6 million and 26 holders of outstanding convertible notes in the aggregate amount of $28.9 million converted their notes into an aggregate of 48,283,657 shares of Series D preferred stock.

The total amount of outstanding principal and accrued interest on our unsecured subordinated convertible promissory notes was $28.6 million as of December 31, 2017 and $0 as of March 31, 2018. On February 2, 2018, the outstanding principal and accrued interest underlying each of the notes converted

into shares of Series D preferred stock. Upon the closing of this offering, the shares of outstanding preferred stock will convert automatically into shares of common stock.

Cash Flows

The following table summarizes our sources and uses of cash for the periods indicated:

	Year Ended December 31,		Three Months Ended March 31,	
	2016	2017	2017	2018
	(in thousands)		(in thousands)	
Net cash provided by (used in):				
Operating activities	$ (13,947)	$ (24,290)	$ (9,042)	$ (10,000)
Investing activities	(2,885)	(2,544)	(51)	(257)
Financing activities	6,110	28,814	15,704	24,432
Net (decrease) increase in cash	$ (10,722)	$ 1,980	$ 6,611	$ 14,175

Operating Activities

Net cash used in operating activities increased $1.0 million, from $9.0 million for the three months ended March 31, 2017 to $10.0 million for the three months ended March 31, 2018. The increase was mainly due to the increase in net loss. The primary drivers of operating cash requirements were our research and development and general and administrative activities in each period. For the three months ended March 31, 2018, net cash used in operating activities was $10.0 million, which comprised mainly operating cash outflows before working capital changes of $8.4 million, and net working capital outflows of $1.6 million.

Net cash used in operating activities increased $10.3 million, from $13.9 million for the year ended December 31, 2016 to $24.3 million for the year ended December 31, 2017. The increase was mainly due to the increase in net loss. The primary drivers of operating cash requirements were our research and development and general and administrative activities in each period. For the year ended December 31, 2017, net cash used in operating activities was $24.3 million, which comprised mainly operating cash outflows before working capital changes of $24.7 million, and net working capital inflows of $0.4 million.

Investing Activities

Net cash used in investing activities increased $0.2 million, from $51 thousand for the three months ended March 31, 2017 to $0.3 million for the three months ended March 31, 2018. The increase was due to increased purchases of property, plant and equipment.

Net cash used in investing activities decreased $0.4 million, from $2.9 million for the year ended December 31, 2016 to $2.5 million for the year ended December 31, 2017. The decrease was due to decreased purchases of property, plant and equipment.

Financing activities

Net cash provided by financing activities increased $8.7 million, from $15.7 million for the three months ended March 31, 2017 to $24.4 million for the three months ended March 31, 2018. For the three months ended March 31, 2018, net cash provided by financing activities of $24.4 million was primarily due to net proceeds from the sale of Series D preferred stock of $25.6 million and proceeds from the exercise of stock options of $0.2 million, partially offset by principal payments on debt of $1.1 million.

Net cash provided by financing activities increased $22.7 million, from $6.1 million for the year ended December 31, 2016 to $28.8 million for the year ended December 31, 2017. For the year ended December 31, 2017, net cash provided by financing activities of $28.8 million was primarily due to proceeds from long-term debt of $31.4 million comprised of $4.0 million related to debt with PWB and

convertible notes of $27.4 million, which was offset by $1.4 million in debt issuance costs. In addition, we received proceeds from the exercise of stock options and warrants of $0.1 million. The aggregate proceeds from financing activities were partially offset by principal payments on debt of $1.3 million.

Funding Requirements

We plan to focus in the near term on the development, regulatory approval and potential commercialization of LIQ861 and LIQ865. We anticipate we will incur net losses for the next several years as we complete clinical development of these product candidates and continue research and development of additional product candidates. In addition, we plan to continue to invest in discovery efforts to explore additional product candidates, potentially build commercial capabilities and expand our corporate infrastructure. We may not be able to complete the development and initiate commercialization of these programs if, among other things, our clinical trials are not successful or if the FDA does not approve our product candidates arising out of our current clinical trials when we expect, or at all.

Our primary uses of capital are, and we expect will continue to be, compensation and related expenses, clinical costs, external research and development services, laboratory and related supplies, legal and other regulatory expenses and administrative and overhead costs. Our future funding requirements will be heavily determined by the resources needed to support development of our product candidates.

Following this offering, we will be a publicly traded company and will incur significant legal, accounting and other expenses that we were not required to incur as a private company. In addition, the Sarbanes-Oxley Act, as well as rules adopted by the SEC and Nasdaq, requires public companies to implement specified corporate governance practices that are currently inapplicable to us as a private company. We expect these rules and regulations will increase our legal and financial compliance costs and will make some activities more time-consuming and costly.

We believe that the anticipated net proceeds from this offering, together with our existing cash, will enable us to fund our operating expenses and capital expenditure requirements until at least , including the completion of our ongoing Phase 3 clinical trial for LIQ861 and the initiation of our Phase 2-enabling toxicology studies in 2018 for LIQ865. We have based this estimate on assumptions that may prove to be wrong, and we could utilize our available capital resources sooner than we expect. We expect that we will require additional capital to commercialize our product candidates, if we receive regulatory approval, and to pursue in-licenses or acquisitions of other product candidates. If we receive regulatory approval for LIQ861 or LIQ865, we expect to incur significant commercialization expenses related to product manufacturing, sales, marketing and distribution, depending on where we choose to commercialize. Additional funds may not be available on a timely basis, on favorable terms, or at all, and such funds, if raised, may not be sufficient to enable us to continue to implement our long-term business strategy. If we are unable to raise sufficient additional capital, we may need to substantially curtail our planned operations and the pursuit of our growth strategy.

We may raise additional capital through the sale of equity or convertible debt securities. In such an event, your ownership will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect your rights as a holder of our common stock.

Because of the numerous risks and uncertainties associated with research, development and commercialization of pharmaceutical drugs, we are unable to estimate the exact amount of our working capital requirements. Our future funding requirements will depend on many factors, including:

- the number and characteristics of the product candidates we pursue;
- the scope, progress, results and costs of researching and developing our product candidates, and conducting preclinical studies and clinical trials;
- the timing of, and the costs involved in, obtaining regulatory approvals for our product candidates;
- the cost of manufacturing our product candidates and any product we successfully commercialize;

- our ability to establish and maintain strategic collaborations, licensing or other arrangements and the financial terms of such agreements;
- the costs involved in preparing, filing, prosecuting, maintaining, defending and enforcing patent claims, including litigation costs and the outcome of such litigation; and
- the timing, receipt and amount of sales of, or milestone payments related to or royalties on, our current or future product candidates, if any.

See "Risk Factors" for additional risks associated with our substantial capital requirements.

Critical Accounting Policies and Significant Judgments and Estimates

This management's discussion and analysis of our financial condition and results of operations is based on our financial statements, which have been prepared in accordance with generally accepted accounting principles in the United States, or GAAP. The preparation of these consolidated financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities and expenses and the disclosure of contingent assets and liabilities in our financial statements. On an ongoing basis, we evaluate our estimates and judgments, including those related to long-lived assets, derivatives, stock-based compensation and accrued expenses. We base our estimates on historical experience, known trends and events and various other factors that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

While our significant accounting policies are described in more detail in the notes to our consolidated financial statements appearing elsewhere in this prospectus, we believe the following accounting policies to be the most critical to the judgments and estimates used in the preparation of our financial statements.

Going Concern

Our operations have consisted primarily of developing our technology, developing products, prosecuting our intellectual property and securing financing. We have incurred recurring losses and cash flows from operations, have an accumulated deficit and have debt maturing within twelve months. The accompanying financial statements have been prepared on a basis which assumes that we will continue as a going concern. We have incurred losses and cash outflows from operations since our inception. We expect to continue to incur losses in the foreseeable future and will require additional financial resources to continue to advance our products and intellectual property, in addition to repaying our maturing debt obligations. These circumstances raise substantial doubt about our ability to continue as a going concern. Management's plans with regard to this matter include continuing attempts to obtain additional financing from our current investors and new investors to sustain our operations or to pursue other financing alternatives. However, there is no assurance that we will be successful in obtaining sufficient financing on terms acceptable to us and our failure to obtain sufficient funds on acceptable terms, when needed, could have a material adverse effect on our business, results of operations and financial condition. If sufficient financings do not occur, this may necessitate other actions by us. The financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Revenue Recognition

Our revenues are generated through license, collaboration and other similar research and development agreements. These agreements include up-front fees, payments for achievement of specified development, regulatory and sales milestones and provision for billing for research and development services like particle formulations and manufacturing, all of which comprise our revenues. In addition, such agreements provide for royalties on product sales after commercial launch of the related products. We record any amounts received in advance of services performed as deferred revenue and recognize them as revenue over the estimated period of our substantive performance obligations.

In May 2014, the Financial Accounting Standards Board, or the FASB, issued Accounting Standards Update, or ASU, 2014-09, *Revenue from Contracts with Customers*, or Topic 606. The FASB issued

Topic 606 to clarify the principles for recognizing revenue and to develop a common revenue standard for GAAP. The standard outlines a single comprehensive model for entities to use in accounting for revenue arising from contracts with customers and supersedes the most current revenue recognition guidance. Topic 606 also includes Subtopic 340-40, *Other Assets and Deferred Costs—Contracts with Customers*, which requires the deferral of incremental costs of obtaining a contract with a customer and certain contract fulfillment costs. We adopted this standard and all the related amendments, or the new revenue standard, on January 1, 2018, applying the modified retrospective transition method. The modified retrospective transition method is applied on a prospective basis from the adoption date and does not recast historical financial statement periods. Any contracts with customers that were not complete as of the adoption date are reviewed and we recognized the cumulative effect of initially applying the new revenue standard as an adjustment to the opening balance of accumulated deficit as of January 1, 2018. Financial information in comparative periods have not been restated and continue to be reported under the accounting methods in effect for that period.

This adoption primarily affected the recognition of non-refundable up-front fees and milestone payments. We previously recognized non-refundable up-front fees as deferred revenue which was recognized into revenue on a straight-line basis over the estimated period of our substantive performance obligations, as a component of a multiple element arrangement. Milestone payments were previously accounted for under ASC 605-28-50-2(e), which had required recognition of a milestone payment when the applicable event was considered to be both substantive and achieved. The adoption of the new revenue standard generally requires licenses that are not considered distinct performance obligations from other goods or services within a contract to be bundled with those goods or services as a combined performance obligation. Revenue associated with the combined performance obligation is recognized over time as those goods or services are delivered.

The adoption of the new revenue standard also impacted the deferral of sublicense payments related to the milestone payments, which were previously expensed when the milestone payments were recognized, and the timing of recognition of deferred sublicense payments related to upfront license payments. Under the new revenue standard, the incremental sublicense payments related to milestone payments will be deferred as contract fulfillment costs and amortized over time, consistent with the method of recognition for the related revenues.

The cumulative effect of the changes made to the January 1, 2018 balance of accumulated deficit on our balance sheet for the adoption of Topic 606 was an increase to the accumulated deficit of $0.5 million.

Stock-Based Compensation

We account for stock-based compensation under ASC Topic 718, Compensation — Stock Compensation, or ASC 718. Determining the amount of stock-based compensation to be recorded requires us to determine estimates of fair values of stock options as of the grant date.

We account for stock-based compensation by measuring and recognizing compensation expense for all stock-based payments made to employees and directors based on estimated grant date fair values. We use the straight-line method to allocate compensation cost to reporting periods over each optionee's requisite service period, which is generally the vesting period. We estimate the fair value of our stock-based awards to employees and directors using the Black-Scholes option-pricing model, or the Black-Scholes Model. The Black-Scholes Model requires the input of subjective assumptions, including the expected stock price volatility, the calculation of expected term and the fair value of the underlying common stock on the date of grant, among other inputs. The risk-free interest rate was determined with the implied yield currently available for zero-coupon U.S. government issues with a remaining term approximating the expected life of the options.

All stock-based awards granted to non-employees are accounted for at their fair value in accordance with ASC 505, Accounting for Equity Instruments that are Issued to Other Than Employees for Acquiring, or in

Conjunction with Selling, Goods or Services, or ASC 505, under which compensation expense is generally recognized over the vesting period of the award.

As there has been no public market for our common stock to date, the estimated fair value of our common stock has been determined by our board of directors, or our Board, as of the date of each option grant, with input from management, considering our most recently available third-party valuations of common stock and our Board's assessment of additional objective and subjective factors that it believed were relevant and which may have changed from the date of the most recent valuation through the date of the grant. These third-party valuations were performed in accordance with the guidance outlined in the American Institute of Certified Public Accountants' Accounting and Valuation Guide, Valuation of Privately-Held-Company Equity Securities Issued as Compensation. Our common stock valuations were prepared using the hybrid method, which used market approaches and, in the November 8, 2016 and February 2, 2018 valuations, initial public offering pre-money valuation estimates provided by management, to estimate our enterprise value. The hybrid method is a probability-weighed expected return method, or PWERM, where the equity value in one or more of the scenarios is calculated using an option-pricing method, or OPM. The OPM treats common stock and preferred stock as call options on the total equity value of a company, with exercise prices based on the value thresholds at which the allocation among the various holders of a company's securities changes. Under this method, the common stock has value only if the funds available for distribution to stockholders exceeded the value of the preferred stock liquidation preferences at the time of the liquidity event, such as a strategic sale or a merger. The PWERM is a scenario-based methodology that estimates the fair value of common stock based upon an analysis of future values for the company, assuming various outcomes. The common stock value is based on the probability-weighted present value of expected future investment returns considering each of the possible outcomes available as well as the rights of each class of stock. The future value of the common stock under each outcome is discounted back to the valuation date at an appropriate risk-adjusted discount rate, a discount for lack of marketability is applied to each indication, and probability weighted to arrive at an indication of value for the common stock. Third-party valuations were performed at various dates by CapVal-American Business Appraisers, LLC, which resulted in valuations of our common stock of $0.35 per share as of November 8, 2015, $1.21 as of November 8, 2016, and $0.553 per share as of February 2, 2018. In addition to considering the results of these third-party valuations, our board of directors considered various objective and subjective factors to determine the fair value of our common stock as of each grant date, which may be a date later than the most recent third-party valuation date, including:

- the prices at which we sold shares of preferred stock and the superior rights and preferences of the preferred stock relative to our common stock at the time of each grant;
- the progress of our research and development programs, including the status of preclinical studies and planned clinical trials for our product candidates;
- our stage of development and commercialization and our business strategy;
- external market conditions affecting the pharmaceutical and biotechnology industries, and trends within the biotechnology industry;
- our financial position, including cash on hand, and our historical and forecasted performance and operating results;
- the lack of an active public market for our common stock and our preferred stock;
- the likelihood of achieving a liquidity event, such as an initial public offering or a sale of our company in light of prevailing market conditions; and
- the analysis of initial public offerings and the market performance of similar companies in the biopharmaceutical industry.

The assumptions underlying these valuations represent management's best estimates, which involve inherent uncertainties and the application of management judgment. As a result, if factors or expected outcomes change and we use significantly different assumptions or estimates, our stock-based compensation expense could be materially different.

Options Granted

The following table sets forth by grant date the number of shares subject to options granted between January 1, 2016 and the date of this prospectus, the per share exercise price of the options and the fair value of common stock per share on each grant date:

Grant Date	Number of Shares Subject to Options Granted	Per Share Exercise Price of Options	Fair Value of Common Stock Per Share on Grant Date
February 10, 2016	645,139	$ 0.35	$ 0.35
August 10, 2016	465,617	$ 0.35	$ 0.35
August 30, 2016	235,000	$ 0.35	$ 0.35
December 7, 2016	150,000	$ 1.21	$ 1.21
March 15, 2017	219,000	$ 1.21	$ 1.21
May 31, 2017	18,000	$ 1.21	$ 1.21
March 7, 2018[(1)]	13,645,767	$ 0.55	$ 0.55
March 27, 2018	25,000	$ 0.55	$ 0.55

(1) We also issued 2,146,767 restricted stock units on March 7, 2018 to Kevin Gordon, our new President and Chief Financial Officer.

For stock awards after the completion of this offering, our Board intends to determine the fair value of each share of underlying common stock based on the closing price of our common stock as reported on the date of grant.

The intrinsic value of all outstanding options as of the date of this prospectus was $ million based on the estimated fair value of our common stock of $ per share, which is the assumed initial public offering price per share of our common stock based on the midpoint of the estimated price range set forth on the cover of this prospectus.

If factors change and we employ different assumptions, stock-based compensation expense may differ significantly from what we have recorded in the past. If there are any modifications or cancellations of the underlying unvested securities, we may be required to accelerate, increase or cancel any remaining unearned stock-based compensation expense. To the extent that our assumptions are incorrect, the amount of stock-based compensation recorded will change.

Convertible Instruments

We have utilized various types of financing to fund our business needs, including convertible debt and convertible preferred stock, in some cases with corresponding warrants. We considered guidance within FASB ASC 470-20, *Debt with Conversion and Other Options*, or ASC 470-20, ASC 480, *Distinguishing Liabilities from Equity*, or ASC 480, and ASC 815, *Derivatives and Hedging*, or ASC 815, when accounting for the issuance of convertible securities. Additionally, we review the instruments to determine whether they are freestanding or contain an embedded derivative and, if so, whether they should be classified in permanent equity, mezzanine equity or as a liability at each reporting period until the amount is settled and reclassified into equity.

When multiple instruments are issued in a single transaction, we allocate total proceeds from the transaction among the individual freestanding instruments identified. The allocation is made after identifying all the freestanding instruments and the subsequent measurement basis for those instruments.

The subsequent measurement basis determines how the proceeds are allocated. Generally, proceeds are allocated based on one of the following methods:

- Fair value method—The instrument being analyzed is allocated a portion of the proceeds equal to its fair value, with the remaining proceeds allocated to the other instruments as appropriate.
- Relative fair value method—The instrument being analyzed is allocated a portion of the proceeds based on the proportion of its fair value to the sum of the fair values of all the instruments covered in the allocation.
- Residual value method—The instrument being analyzed is allocated the remaining proceeds after an allocation is made to all other instruments covered in the allocation.

Generally, when there are multiple instruments issued in a single transaction that have different subsequent measurement bases, the proceeds from the transaction are first allocated to the instrument that is subsequently measured at fair value (i.e., instruments accounted for as a derivative liabilities) at its issuance date fair value, with the residual proceeds allocated to the instrument not subsequently measured at fair value. In the event both instruments in the transaction are not subsequently measured at fair value (i.e., equity-classified instruments), the proceeds from the transaction are allocated to the freestanding instruments based on their respective fair values, using the relative fair value method.

After the proceeds are allocated to the freestanding instruments, resulting in an initial discount on the host contract, those instruments are further evaluated for embedded features (i.e., conversion options) that require bifurcation and separate accounting as a derivative financial instrument pursuant to ASC 815. Embedded derivatives are initially and subsequently measured at fair value. Under ASC 815, a portion of the proceeds received upon the issuance of the hybrid contract is allocated to the fair value of the derivative.

We account for convertible instruments in which it is determined that the embedded conversion options should not be bifurcated from their host instruments in accordance with ASC 470-20. Under ASC 470-20, we record, when necessary, discounts to convertible notes or convertible preferred stock for the intrinsic value of conversion options embedded in the convertible instruments based upon the differences between the fair value of the underlying common stock at the commitment date of the transaction and the effective conversion price embedded in the convertible instrument, unless limited by the proceeds allocated to such instrument.

Warrant Liabilities

We have classified warrants to purchase shares of Series C-1 preferred stock as liabilities on our balance sheets as these warrants were free-standing financial instruments that will require us to issue convertible securities upon exercise. The warrants were initially recorded at fair value on date of grant, and they will be subsequently remeasured to fair value at each reporting period. Changes in fair value of the warrants are recognized as a component of other income (expense) in our statements of operations and comprehensive loss. We will continue to adjust the liabilities for changes in fair value at each reporting period until the warrant liabilities are settled. Following the completion of this offering and the conversion of preferred stock into common stock, we will no longer include the warrant liabilities on the balance sheet or recognize changes in their fair value in the statements of operations and comprehensive loss since they will then be exercisable into shares of common stock.

We used the Black-Scholes option pricing model, which incorporates assumptions and estimates, to value the preferred stock warrants. We assessed these assumptions and estimates on a quarterly basis as additional information impacting the assumptions was obtained. Estimates and assumptions impacting the fair value measurement included the fair value per share of the underlying Series C-1 preferred stock, the remaining contractual term of the warrant, the risk-free interest rate, the expected dividend yield and the expected volatility of the price of the underlying preferred stock. We determined the fair value per share of the underlying preferred stock by taking into consideration the most recent sales of our convertible preferred stock, results obtained from third-party valuations and additional factors that were deemed relevant. We estimated our expected stock volatility based on the historical volatility of publicly traded peer companies

for a term equal to the remaining contractual term of the warrant. The risk-free interest rate was determined by reference to the U.S. Treasury yield curve for time periods approximately equal to the remaining contractual term of the warrant. Expected dividend yield was based on the fact that we have never paid cash dividends and do not expect to pay any cash dividends in the foreseeable future.

Embedded Derivatives

Embedded derivatives that are required to be bifurcated from the underlying instrument are accounted for and valued as a separate financial instrument. In conjunction with our convertible instruments, embedded derivatives exist associated with the future consummation of a qualified financing event, as defined, and a subsequent discounted conversion of the instrument to capital stock. The embedded derivatives are bifurcated and classified as derivative liabilities on the balance sheets and separately adjusted to their fair values at the end of each reporting period. Changes in fair values of the derivative liabilities are recognized as a component of other income (expense) in the statements of operations and comprehensive loss.

Issuance Costs Related to Equity and Debt

We allocate issuance costs between the individual freestanding instruments identified on the same basis as proceeds were allocated. Issuance costs associated with the issuance of stock or equity contracts (i.e., equity-classified warrants and convertible preferred stock) are recorded as a charge against the gross proceeds of the offering. Any issuance costs associated with the issuance of liability-classified warrants are expensed as incurred. Issuance costs associated with the issuance of debt (i.e., convertible debt) are recorded as a direct reduction of the carrying amount of the debt liability, but limited to the notional value of the debt. We account for debt as liabilities measured at amortized cost and amortizes the resulting debt discount to interest expense using the straight-line method over the expected term of the notes pursuant to ASC 835, *Interest* (ASC 835). To the extent that the reduction from issuance costs of the carrying amount of the debt liability would reduce the carrying amount below zero, such excess is recorded as interest expense.

Income Taxes

We file U.S. Federal income tax returns and North Carolina State tax returns. Our deferred tax assets primarily consist of Federal and State tax net operating losses and tax credit carryforwards and are recorded using enacted tax rates expected to be in effect in the years in which these temporary differences are expected to be utilized. As of March 31, 2018, we had Federal net operating loss carryforwards of $96.9 million that begin to expire in 2027 for Federal purposes and $97.9 million that begin to expire in 2022 for State purposes. The utilization of the credit carryforwards to reduce future income taxes will depend on our ability to generate sufficient taxable income prior to the expiration of the carryforwards. We may be subject to the net operating loss utilization provisions of Section 382 of the Code. The effect of an ownership change would be the imposition of an annual limitation on the use of net operating loss carryforwards attributable to periods before the change. The amount of the annual limitation depends upon our value immediately before the ownership change, changes to our capital during a specified period prior to the change and the Federal published interest rate. Our management estimates and records a valuation allowance against deferred tax assets when realization of the tax benefit is uncertain. A valuation allowance is recorded, if necessary, to reduce net deferred taxes to their realizable values if our management does not believe it is more likely than not that the net deferred tax assets will be realized.

On December 22, 2017, the Tax Cuts and Jobs Act, or the TCJA, was enacted into law. This new law includes significant changes to the U.S. corporate income tax system, including a permanent reduction in the corporate income tax rate from 35% to 21%, limitations on the deductibility of interest expense and executive compensation and the transition of U.S. international taxation from a worldwide tax system to a territorial tax system. The TCJA also limits interest expense deductions to 30% of taxable income before interest, depreciation and amortization from 2018 to 2021 and then taxable income before interest thereafter. The TCJA permits disallowed interest expense to be carried forward for five years. We have calculated our best estimate of the impact of the TCJA in our year-end income tax provision in accordance with our understanding of the TCJA and guidance available at the time. The overall impact of the TCJA resulted in a decrease to the deferred tax assets and a corresponding decrease to the valuation allowance of

$14.1 million. Using the guidance issued by the SEC staff in Staff Accounting Bulletin No. 118, we expect to complete the accounting for the TCJA when our 2017 U.S. federal income tax return is filed in 2018.

Research and Development Expenses

When preparing our financial statements, we are required to estimate our research and development expenses. This process involves reviewing open contracts and communicating with our personnel to identify services that have been performed on our behalf and estimating the level of service performed and the associated cost incurred for the service when we have not yet been invoiced or otherwise notified of actual cost. Payments under some of the contracts we have with parties depend on factors, such as successful enrollment of certain numbers of patients, site initiation and the completion of clinical trial milestones. When accruing clinical expenses, we estimate the time period over which services will be performed and the level of effort to be expended in each period. If possible, we obtain information regarding unbilled services directly from our service providers. However, we may be required to estimate the cost of these services based only on information available to us. If we underestimate or overestimate the cost associated with a trial or service at a given point in time, adjustments to research and development expenses may be necessary in future periods. Historically, our estimated research and development expenses have approximated actual expenses incurred.

Fair Value of Financial Instruments

The carrying values of cash, accounts receivable, accounts payable and related party receivables at March 31, 2018 approximated their fair value due to the short maturity of these instruments.

Our valuation of financial instruments is based on a three-tiered approach, which requires that fair value measurements be classified and disclosed in one of three tiers. The fair value hierarchy defines a three-level valuation hierarchy for disclosure of fair value measurements as follows:

- Level 1 — Quoted prices in active markets for identical assets or liabilities;
- Level 2 — Other than quoted prices included in Level 1 inputs that are observable for the asset or liability, either directly or indirectly; and
- Level 3 — Unobservable inputs for the asset and liability used to measure fair value, to the extent that observable inputs are not available.

The categorization of a financial instrument within the valuation hierarchy is based upon the lowest level of input that is significant to the fair value measurement.

JOBS Act

As an "emerging growth company" under the JOBS Act, we can take advantage of an extended transition period for complying with new or revised accounting standards. This allows an emerging growth company to delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have irrevocably elected to "opt out" of this provision and, as a result, we will comply with new or revised accounting standards when they are required to be adopted by public companies that are not emerging growth companies.

Subject to certain conditions, as an emerging growth company, we intend to rely on certain of these exemptions, including without limitation:

- only two years of audited financial statements in addition to any required unaudited interim financial statements with correspondingly reduced "Management's Discussion and Analysis of Financial Condition and Results of Operations" disclosure;
- reduced disclosure about our executive compensation arrangements;
- no advisory votes on executive compensation or golden parachute arrangements; and
- exemption from the auditor attestation requirement in the assessment of our internal control over financial reporting.

We may take advantage of these exemptions for up to five years or such earlier time that we are no longer an emerging growth company. We would cease to be an emerging growth company on the date that is the

earliest of (i) the last day of the fiscal year in which we have total annual gross revenues of $1.07 billion or more; (ii) the last day of 2023; (iii) the date on which we have issued more than $1.0 billion in nonconvertible debt during the previous three years; or (iv) the date on which we are deemed to be a large accelerated filer under the rules of the SEC. We may choose to take advantage of some but not all of these exemptions. We have taken advantage of reduced reporting requirements in this prospectus. Accordingly, the information contained herein may be different from the information you receive from other public companies in which you hold stock.

Contractual Obligations

The following table summarizes our contractual obligations as of December 31, 2017.

	Payments Due by Period (in thousands)				
	Less than 1 Year	1-3 Years	3-5 Years	More Than 5 Years	Total
Long-term debt obligations[1]	$ 33,180	$ 5,577	$ —	$ —	$ 38,757
Operating lease obligations[2]	968	2,019	2,128	4,159	9,274
Capital lease obligations[3]	489	530	—	—	1,019
Purchase obligations[4]	8,093	1,745	—	—	9,838
Total	$ 42,730	$ 9,871	$ 2,128	$ 4,159	$ 58,888

(1) Consists of our (i) $9.1 million balance under our loan facility with PWB, (ii) $2.3 million promissory note issued to UNC, and (iii) $27.4 million of convertible notes, which were converted into Series D preferred stock in February 2018.

(2) Consists of obligations under (i) two multi-year, non-cancelable building leases for our facilities in Morrisville, North Carolina, which expire on October 31, 2026, (ii) our agreement with Chasm Technologies, Inc. for services related to our manufacturing facilities, and (iii) copier equipment under a lease which expires in 2019.

(3) Consists of (i) leases for specialized lab equipment and (ii) an agreement with a commercial manufacturer to build a PRINT particle fabrication line.

(4) Consists of other contracts entered into in the normal course of business with CROs, clinical trial sites and manufacturing organizations and with vendors for preclinical studies, research suppliers and other services and products for operating purposes. These contracts generally provide for termination by either party after a notice period.

We have two leases for our facilities in Morrisville, North Carolina. In January 2017, the leases were amended to extend the term through October 31, 2026. Our contractual commitments under the leases as of December 31, 2017 total $9.3 million.

We have drawn down an aggregate of $10.0 million from our loan agreement with PWB as of December 31, 2017. Our contractual commitments under the LSA as of December 31, 2017 consist of an aggregate of $9.1 million in repayment obligations, inclusive of related interest amounts. See "—Liquidity and Capital Resources—Sources of Liquidity" for additional information regarding the LSA.

This table does not include any potential milestone or royalty payments we may be required to make under the UNC License because the amount and timing of when those payments will actually be made is uncertain and the payments are contingent upon the initiation and completion of future activities.

Quantitative and Qualitative Disclosures About Market Risk

We are exposed to market risks related to changes in foreign currency exchange rates and interest rates.

We contract with suppliers in foreign countries. As such, we have exposure to adverse changes in exchange rates of foreign currencies, principally the Euro, associated with our foreign transactions. We believe this

exposure to be immaterial. We currently do not hedge against this exposure to fluctuations in exchange rates.

Our exposure to market risk also relates to interest rate sensitivity, which is affected by changes in the general level of U.S. interest rates. As of December 31, 2017, excluding capital leases and excluding convertible notes that were converted into Series D preferred stock in February 2018, our aggregate outstanding indebtedness was $11.3 million, which bears interest at rates varying from 3.75% to 5.0% or LIBOR plus 3.0%. Due to the short-term duration of our indebtedness, an immediate one percentage point change in interest rates would not have a material effect on our financial position or results of operations.

Off-Balance Sheet Arrangements

We did not have during the periods presented, and we do not currently have, any off-balance sheet arrangements, as defined in the rules and regulations of the SEC.

BUSINESS

Overview

We are a late-stage clinical biopharmaceutical company focused on the development and commercialization of human therapeutics using our proprietary PRINT® technology to transform the lives of patients. PRINT is a particle engineering platform that enables precise production of uniform drug particles designed to improve the safety, efficacy and performance of a wide range of therapies. We are currently focused on the development of two product candidates for which we hold worldwide commercial rights: LIQ861 for the treatment of pulmonary arterial hypertension, or PAH, and LIQ865 for the treatment of local post-operative pain. Our lead product candidate, LIQ861, is being evaluated in a Phase 3 trial. LIQ861 is an inhaled dry powder formulation of treprostinil designed to improve the therapeutic profile of treprostinil by enhancing deep-lung delivery and achieving higher dose levels than current inhaled therapies. We have applied our PRINT technology to enable us to deliver LIQ861 through a convenient, disposable dry powder inhaler, or DPI. Our second product candidate, LIQ865, for which we have recently completed a Phase 1b clinical trial, is designed to deliver sustained-release particles of bupivacaine, a non-opioid anesthetic, to treat local post-operative pain for three to five days through a single administration. In addition to developing our two product candidates, we collaborate, and intend to collaborate, with leading pharmaceutical companies to develop their own product candidates across a wide range of therapeutic areas, molecule types and routes of administration, leveraging our PRINT technology.

Our lead product candidate, LIQ861, is an inhaled, dry powder formulation of treprostinil designed for enhancing deep-lung delivery using a convenient DPI for the treatment of PAH, a chronic, progressive disease caused by the hardening and narrowing of the pulmonary arteries that can lead to right heart failure and eventually death. Treprostinil is a synthetic analog of prostacyclin, a vasoactive mediator essential to normal lung function that is deficient in patients with PAH. PAH is a rare disease, with an estimated prevalence in the United States expected to be between 25,000 and 30,000 patients by 2020. Decision Resources Group, an independent industry research firm, estimated that in 2016 more than 50% of patients with PAH in the United States were prescribed treprostinil across its three routes of administration (oral, inhaled and parenteral infusion), generating revenue that represented about one-third of the approximately $3.7 billion U.S. market for PAH drug therapies. The inhaled route of administration, in which medication is inhaled directly into the lungs, helps minimize the off-tissue adverse side effects of systemic delivery by delivering the drug directly where it is needed. Tyvaso® (treprostinil, inhaled solution), marketed by United Therapeutics Corporation in the United States, is the standard of care among the inhaled therapies, with more than 80% of inhaled prostacyclin sales in the United States. Current inhaled therapies, including Tyvaso, are delivered by a nebulizer, a device that converts a liquid formulation into mist, and require between four and nine doses per day. Nebulizers require regular care and maintenance, including daily cleaning and access to additional parts and supplies, such as distilled water and a power source, all of which compromise the portability of the device and the quality of life of patients.

We believe LIQ861, if approved, will be the first-to-market inhaled dry powder treprostinil that can be delivered using a convenient, palm-sized, disposable DPI. We believe LIQ861 can overcome the limitations of current inhaled therapies and has the potential to maximize the therapeutic benefits of treprostinil in treating PAH by safely delivering higher doses into the lungs. Based on our *in vitro* studies we believe that the precise size, trefoil-like shape and uniformity of each LIQ861 particle may provide deep-lung delivery of treprostinil and may reduce deposition in the upper airway where irritation and pain have been observed with nebulized treprostinil. In March 2017, we completed a Phase 1 trial of LIQ861 in 57 healthy volunteers in which LIQ861 was well-tolerated at all doses tested up to 150 mcg, which we estimate is equivalent to approximately twice the maximum recommended dosage of Tyvaso, and showed a proportional dose-response in pharmacokinetics. We estimate that the 75 mcg dose of LIQ861, delivered in one to two breaths, is approximately equivalent to the maximum recommended dosage of Tyvaso (54 mcg, delivered in nine breaths). After consultation with the U.S. Food and Drug Administration, or the FDA, we advanced

from this Phase 1 trial into our current single, pivotal Phase 3 trial, known as INSPIRE, or Investigation of the Safety and Pharmacology of Dry Powder Inhalation of Treprostinil. We will seek approval of LIQ861 under the 505(b)(2) pathway, which would allow us to rely in part on the FDA's previous findings of efficacy and safety of Tyvaso and the active ingredient treprostinil, which has been approved in four different products administered through the continuous infusion (parenteral), inhaled and oral routes. In January 2018, we announced the initiation of INSPIRE evaluating LIQ861 for the treatment of PAH in the United States. If approved, we believe LIQ861 will have the potential to increase the number of patients using the inhaled route of treatment for PAH by providing the benefits of inhaled prostacyclin therapy earlier in a patient's disease progression as well as delaying the burden of starting continuously infused products. As of May , 2018, patients have enrolled in the INSPIRE trial at trial sites and we have contracted a total of trial sites to enroll patients. The study is designed to evaluate patients who have either been under stable treatment with nebulizer-delivered trepostinil for at least three months and are transitioned to LIQ861 under the protocol or who have been under stable treatment with no more than two non-prostacyclin oral PAH therapies for at least three months and have their treatment regimen supplemented with LIQ861 under the protocol. Of the total enrolled patient population, as of May , 2018, subjects have received at least two weeks of LIQ861 at a stable dose, of whom have been titrated up from the initial starting dose under the protocol. Two weeks is the first scheduled patient assessment.

Our second product candidate, LIQ865, is an injectable, sustained-release formulation of bupivacaine for the management of local post-operative pain for three to five days after a procedure. We believe LIQ865, if approved, has the potential to provide significantly longer local post-operative pain relief compared to currently marketed formulations of bupivacaine. We estimate that there were over 40 million surgeries in our target market, which consists of orthopedic and soft tissue surgeries, performed in the United States in 2016. According to IMS Health, an independent market research firm, the global market for local anesthetics was approximately $776 million in 2016. Despite current pain-management protocols, post-operative pain is still undermanaged, with studies showing that approximately 50% of patients self-report inadequate pain relief. Post-operative pain management is becoming more important as surgeries increase in volume and complexity and hospitals seek treatments that support faster recovery and time to discharge. Concurrently, the risk of opioid abuse and diversion has led physicians, payors and the U.S. federal government to prioritize pain management strategies that minimize reliance on opioids. Local anesthetics, such as bupivacaine, provide a well-established, non-opioid option for post-operative pain management, but their duration of efficacy has been limited to eight hours or less. The FDA has approved one long-acting local anesthetic, liposomal bupivacaine, but pain relief typically lasts only 24 to 36 hours, according to physicians, and its use in combination with other local anesthetics can result in an unsafe release of drug. In LIQ865, we have engineered the size and composition of the LIQ865 PRINT particles to release bupivacaine over three to five days through a single administration. We completed a Phase 1a clinical trial of LIQ865 in Denmark and a Phase 1b clinical trial in the United States. We expect to initiate Phase 2-enabling toxicology studies for LIQ865 in the second half of 2018.

Both LIQ861 and LIQ865 are being developed using our proprietary PRINT particle engineering technology, which allows us to engineer and manufacture highly uniform drug particles with independent control over their size, three-dimensional geometric shape and chemical composition. By controlling these physical and chemical parameters of particles, PRINT enables us to target and design desirable pharmacological benefits into product candidates, including prolonged duration of drug release, increased drug loading, a more convenient method of administration, novel combination products, enhanced storage and stability and the potential to reduce adverse side effects. We have scaled PRINT manufacturing to meet the demands of clinical development and, we believe, commercial production. Our approach enables us to design and produce custom micro- and nano-particles containing existing or new small molecule drugs or biologics. For example, we have engineered LIQ861 so that each particle has an ideal aerodynamic size and shape for deep-lung delivery. Our PRINT particle engineering technology also allows us to design the chemical

composition of particles to control drug release ranging from minutes, days, weeks or months as needed to meet a target profile, such as LIQ865's three to five day release of bupivacaine.

Initially, our internal pipeline is focused on the development of improved and differentiated drug products containing FDA-approved active pharmaceutical ingredients, or APIs, with established efficacy and safety profiles, which we believe are eligible for the 505(b)(2) regulatory pathway to seek marketing approval in the United States. The 505(b)(2) regulatory pathway can be capital efficient and potentially enable a shorter time to approval. We intend to seek marketing approval in the United States for LIQ861 and LIQ865 under the 505(b)(2) regulatory pathway, which would allow us to rely in part on existing knowledge of the safety and efficacy of the reference listed drugs. The FDA has indicated that it considers LIQ861, which is delivered by a DPI, to be a drug-device combination product and, accordingly, the DPI will be evaluated as part of our new drug application, or NDA, filing.

In addition to building our own internal pipeline, we collaborate with leading pharmaceutical companies to develop their own product candidates, leveraging our PRINT technology across a wide range of therapeutic areas, molecule types and routes of administration. Through our collaboration arrangement with GlaxoSmithKline plc and its subsidiaries, collectively, GSK, we apply PRINT technology to novel molecules. If our product candidates receive marketing approval, we plan to commercialize them in the United States by establishing our own sales force and commercial infrastructure. Outside of the United States, we intend to pursue the regulatory approval and commercialization of our product candidates with leading pharmaceutical companies with regional expertise. We intend to manufacture our product candidates using in-house capabilities. Where appropriate, we will rely on contract manufacturing organizations, or CMOs, to produce, package and distribute our approved drug products on a commercial scale.

Product Pipeline

The following table summarizes key information about clinical-stage product candidates being developed using PRINT technology.

Product	Indication	Formulation & Route	Phase 1	Phase 2	Phase 3	Next Key Milestone	Worldwide Commercial Rights
LIQ861[1]	PAH	Dry powder inhalation				Interim safety data 1H:19	Liquidia
LIQ865	Local, post-operative pain	Sustained-release injectable				Ph2-enabling studies 2H:18	Liquidia
CCI15106	COPD[2]	Dry powder inhalation					GSK

1. After consultation with the FDA, we advanced from a Phase 1 trial directly to a single, pivotal Phase 3 trial and will seek approval under the 505(b)(2) pathway
2. COPD is chronic obstructive pulmonary disease

Our Strategy

Our goal is to develop and commercialize medicines with improved and differentiated product profiles based on our PRINT particle engineering technology. To achieve this goal, we intend to execute the following key elements of our business strategy:

- ***Complete the pivotal, safety and pharmacology Phase 3 trial for our lead product candidate, LIQ861, in PAH.*** We initiated INSPIRE, a single, open-label Phase 3 trial, in 100 patients with PAH. We believe, based on feedback from the FDA, that this will support the NDA filing for our novel inhaled dry powder inhaled formulation of treprostinil to treat PAH. We expect to release interim safety data from INSPIRE in the first half of 2019.

- ***Advance our local post-operative pain product candidate, LIQ865, through Phase 2-enabling toxicology studies.*** We completed a Phase 1a clinical trial of LIQ865, our novel long-acting formulation of bupivacaine, in Denmark in March 2017, and a Phase 1b clinical trial in the United States in April 2018. We expect to initiate Phase 2-enabling toxicology studies in the second half of 2018.

- ***Secure regulatory approval and commercialize our internal product candidates independently in the United States and with leading pharmaceutical companies globally.*** We hold worldwide commercialization rights to LIQ861 and LIQ865. Subject to receiving marketing approval which we intend to pursue in the United States via the 505(b)(2) regulatory pathway, we intend to independently pursue the commercialization of LIQ861 in the United States by establishing targeted sales and marketing teams. After reviewing the results of our Phase 2-enabling toxicology studies for LIQ865, and subject to the availability of sufficient funding, we will develop and commercialize LIQ865 independently, if it is ultimately approved, or seek to license this product candidate to one or more third parties. Outside of the United States, we intend to pursue the regulatory approval and commercialization of LIQ861 and LIQ865 with leading pharmaceutical companies with regional expertise.

- ***Expand our internal pipeline leveraging our PRINT technology.*** We intend to continue targeting diseases where we believe our PRINT technology can improve the efficacy, safety and patient experience of current treatments that have been impaired by suboptimal drug product formulation and delivery. We plan to focus initially on the development of improved and differentiated drug products containing FDA-approved APIs with proven efficacy and safety profiles eligible to use the 505(b)(2) regulatory pathway. In addition, we may expand our clinical development of LIQ861 and LIQ865, where appropriate, into broader indications or new applications.

- ***Pursue strategic collaborations to maximize the value of products enabled by PRINT technology.*** In addition to advancing our own internal product candidates, we intend to continue collaborating with leading pharmaceutical companies to develop their own product candidates across a wide range of therapeutic areas, molecule types and routes of administration, leveraging our PRINT technology. Our collaborations help advance new PRINT capabilities, while adding to our intellectual property portfolio.

Our Competitive Strengths

We believe that we have several key strengths that have contributed to the development of our business and that will help us to realize our goal of becoming a biopharmaceutical company across research, development and commercialization activities. Our competitive strengths include:

- ***Our PRINT technology gives us the capability to overcome the constraints of conventional formulation and production methods and can be applied broadly across therapeutic areas, molecule types and routes of administration.*** Our PRINT technology allows us to precisely engineer drug particles in a wide variety of compositions, sizes and shapes and achieve a high level of control over the physical and chemical characteristics of drug particles, as compared to conventional formulation and production methods. PRINT particles can be designed to address specific pharmacological or therapeutic objectives, such as enhancing the route of administration, improving solubility, enhancing

stability or extending therapeutic effects. Using our PRINT technology, we are able to engineer, among others, small molecule and biologic particles, single agent drug and combination drug particles and vaccine particles to improve efficacy, safety and convenience for patients. Our internal pipeline strategy is currently focused on developing proprietary innovations to currently approved drug products in order to minimize development risks and increase speed to market.

In particular, we have designed LIQ861 to maximize the therapeutic benefits of treprostinil in treating PAH by safely delivering higher doses into the lungs using a convenient, palm-sized, disposable DPI. We believe that this may lead to a more attractive product profile with a more convenient method of administering the drug, as compared to the existing inhaled therapies that are currently available. We have also designed LIQ865 with the intention of providing patients with local post-operative analgesia for three to five days. We believe this would provide a longer period of pain relief than the existing local-acting pain drugs that are available, which could be a positive feature in light of interest in reducing the patient's reliance on opioids and non-steroidal anti-inflammatory drugs, or NSAIDs, for local post-operative pain management.

Our PRINT technology is broadly applicable — across therapeutic areas, molecule types and routes of administration — providing us with opportunities for future drug product development.

§ ***We have scaled operations with rapid and cost-effective transition to clinical development and commercial production***. We believe our research and development operations and PRINT technology allow us to transition rapidly and cost-effectively from laboratory to clinical development and ultimately commercial-scale manufacture of drug particles. Utilizing well-established techniques from other roll-to-roll manufacturing processes, we have scaled PRINT technology to support the quality and quantity needs for clinical and, we believe, commercial production of our product candidates. The physical equipment for the PRINT technology requires a relatively small footprint, low capital investment and minimal operating costs. We believe our manufacturing facilities comply with the FDA's current good manufacturing practices, or cGMP, requirements.

§ ***We have a strong proprietary position through a combination of patents, trade secrets, proprietary know-how and licensing arrangements.*** We protect our PRINT technology and the resulting engineered particles through a combination of patents, trade secrets, proprietary know-how and licensing arrangements. We have an active patent strategy that covers major geographic markets, including the United States, Europe and Japan. As of April 30, 2018, our patent portfolio, which includes patents and patent applications we own or co-own, as well as patents and patent applications we have licensed from third parties, such as the University of North Carolina at Chapel Hill, or UNC, comprises 86 issued patents and 36 pending patent applications worldwide. As we develop new product candidates, either independently or with collaborators, we will seek additional patent protection.

§ ***We have strong capabilities in pharmaceutical research and clinical development.*** Our research and development team includes 26 employees, led by our senior management, and has extensive experience in clinical development and pharmaceutical research and development activities in our specific areas of research interest.

§ ***We have a seasoned management team.*** Our team includes industry veterans with significant experience in drug discovery, development and commercialization. Members of our leadership team have worked across different segments of the pharmaceutical industry, including branded and generic pharmaceuticals, medical devices and manufacturing services. Prior to joining us, our Chief Executive Officer and director, Neal Fowler, served as president of Centocor, Inc., a subsidiary of Johnson & Johnson that is focused on the development and commercialization of biomedicines used to treat chronic inflammatory diseases. Additionally, our President and Chief Financial Officer, Kevin Gordon, previously served as executive vice president and chief operating officer and chief financial officer of Quintiles Transnational Holdings Inc. (now named IQVIA Holdings Inc.), a global biopharmaceutical services provider, and our Chief Operations Officer, Robert Lippe, previously served as executive vice president of operations and chief operations officer at Alexza Pharmaceuticals, Inc. Furthermore, our

Senior Vice President, Product Development, Dr. Robert Roscigno, previously served as the executive vice president of GeNO, LLC, where he led the clinical development team working on a novel nitric oxide delivery system, and before that he served as the president and chief operating officer of Lung Rx, Inc., where he was part of the team responsible for bringing Tyvaso through Phase 3 development, and he previously served in multiple leadership positions at United Therapeutics Corporation and its subsidiaries, contributing to the successful development and worldwide commercialization of Remodulin™, which is treprostinil administered through subcutaneous or intravenous infusion, for the treatment of PAH. We believe that their experience enables us to evaluate opportunities and build collaboration arrangements that match the breadth of the potential applications for our PRINT technology.

Our Product Candidates

LIQ861

Our lead product candidate, LIQ861, is an inhaled dry powder formulation of treprostinil designed using our PRINT technology to enhance deep-lung delivery using a convenient DPI for the treatment of PAH. We believe LIQ861 can overcome the limitations of current inhaled therapies and has the potential to maximize the therapeutic benefits of treprostinil in treating PAH by safely delivering higher doses into the lungs. If approved, we believe LIQ861 will have the potential to increase the number of patients using the inhaled route of treatment for PAH by providing the benefits of inhaled prostacyclin therapy earlier in a patient's disease progression as well as delaying the burden of starting continuously infused products.

Background on PAH

PAH is a chronic, progressive disease caused by the hardening and narrowing of pulmonary arteries that can lead to right heart failure and eventually death. Prostacyclin is a vasoactive mediator essential to normal lung function that is deficient in patients with PAH. With PAH, the elevated pressure in the pulmonary arteries strains the right side of the heart as it pumps blood to the lungs. The extra stress causes the heart to enlarge and become less flexible, compromising its ability to push blood out of the heart through the lungs and into the rest of the body. PAH initially presents as exertional dyspnea, lethargy and fatigue and may be confused with other disease states with similar symptoms. PAH often goes undiagnosed or misdiagnosed until symptoms become severe, with the mean time from onset of symptoms to correct diagnosis being more than two years in the United States. As PAH progresses and right ventricular failure develops, exertional chest pain, or angina, exertional syncope and peripheral edema may develop. Following confirmation of diagnosis based on hemodynamic parameters, treatment is recommended to lower pulmonary pressures and treat the symptoms of PAH.

PAH is part of a larger classification of pulmonary hypertension, or PH, which is divided into five groups based on the criteria of the World Health Organization, or WHO, as defined at the 5th World Symposium on Pulmonary Hypertension in Nice, France. WHO Group I is comprised of individuals with PAH.

PAH is a rare disease, with an estimated prevalence in the United States expected to be between 25,000 and 30,000 patients by 2020. Today, the mean age of diagnosis is 50 years according to both French and U.S. registries, with more women being diagnosed with PAH than men. Patients may have idiopathic PAH, in which no underlying cause can be determined, or a heritable form of the disease. A large number of PAH patients also have associated comorbidities such as congenital heart disease, HIV, connective tissue diseases like scleroderma, liver diseases, systemic hypertension, obesity, clinical depression, non-PAH related obstructive airways, sleep apnea and diabetes.

Due to delayed diagnosis, many patients already have an advanced form of PAH, requiring aggressive treatment combining multiple classes of therapy. The severity of PAH may be classified according to the heart failure guidelines of the New York Heart Association, or NYHA, based on how much patients are limited during physical activity and described by the American Heart Association as follows:

- NYHA Class I — No limitation of physical activity. Ordinary physical activity does not cause undue fatigue, palpitation or dyspnea, which is shortness of breath.

- NYHA Class II — Slight limitation of physical activity. Comfortable at rest. Ordinary physical activity results in fatigue, palpitation or dyspnea.
- NYHA Class III — Marked limitation of physical activity. Comfortable at rest. Less than ordinary activity causes fatigue, palpitation or dyspnea.
- NYHA Class IV — Unable to carry on any physical activity without discomfort. Symptoms of heart failure at rest. If any physical activity is undertaken, discomfort increases.

As reported by Decision Resources Group, net revenue in the U.S. market for PAH drug therapies in 2016 was estimated to be $3.7 billion. Of such amount, $2.0 billion was generated from patients in NYHA Class III, $1.2 billion was generated from patients in NYHA Class II and an aggregate of $0.5 billion was generated from patients in NYHA Classes I and IV.

As the disease progresses, these symptoms cause significant negative impact on the quality of life of patients, limiting their ability to do common daily activities, including work, travel and previous hobbies. Patients also describe the emotional toll of PAH, including fear, frustration, embarrassment and stigma. The burden of care associated with currently available treatments can add further logistical and emotional burden to the patients.

Current Therapies and Their Limitations

There is currently no cure for PAH. The goals of existing treatments are to alleviate symptoms, maintain or improve NYHA functional class, delay disease progression and improve quality of life. Inhaled therapies are generally prescribed for, but not limited to, patients in NYHA Class II and Class III. Approved drugs target three distinct molecular pathways that have been implicated in the disease process: the prostacyclin pathway, the nitric oxide pathway and the endothelin pathway. Drugs targeting each of these pathways are used alone or in combination with each other to treat patients with PAH. Prostacyclin deficiency in the lung is a central dysfunction in PAH, but can be supplemented with prostacyclin analogs. Prostacyclin deficiency can also be managed with a recently approved selective IP prostacyclin receptor agonist, selexipag. Nitric oxide deficiency can be treated with phosphodiesterase-5, or PDE5, inhibitors, which target a specific enzyme, increasing vasodilation. Endothelin overexpression in PAH patients causes vasoconstriction of pulmonary vasculature, but can be treated with endothelin receptor antagonists, or ERAs. Many physicians start their PAH patients on oral PDE5 inhibitors, oral ERAs or both. Drugs targeted to the prostacyclin pathway are usually added to these oral therapies, but can be used alone.

Drugs targeting the prostacyclin pathway are central to PAH therapy. Prostacyclin is essential to normal lung function. In healthy people, prostacyclin, which is a vasoactive mediator, is continually released by lungs into arterial circulation to bind different receptors for different effects to regulate vessel tone, including direct vasodilation of pulmonary arteries, inhibition of the proliferation of smooth muscle cells within arteries and inhibition of platelet aggregation. To supplement the deficiency of prostacyclin in patients with PAH, several prostacyclin analogs have been developed including epoprostenol, which is administered intravenously; treprostinil, which can be administered intravenously, subcutaneously or in nebulized or oral formulations; and iloprost, which can be administered intravenously or in nebulized form. A new class of drugs called selective IP prostacyclin receptor agonists help stimulate some of the mechanisms that would otherwise be promoted by prostacyclin or an analog. Selexipag is an oral drug and the only approved molecule in this new class.

The goal of treatment targeting the prostacyclin pathway is to maximize a patient's exposure to the highest tolerable level of drug. Prostacyclin analogs, like treprostinil, have been developed for continuous infusion, either intravenously or subcutaneously, inhalation using a nebulizer and oral administration in the form of tablets. The maximal efficacy benefit of any one drug in the prostacyclin pathway is partially limited by its specific safety profile. Drugs treating the prostacyclin pathway, including oral treprostinil and IP prostacyclin receptor agonists such as selexipag, are limited by side effects from binding of the drug to receptors in non-targeted tissues, such as the gut and nerves, which can cause diarrhea, nausea and jaw pain. Nebulized solutions can have side effects including cough and upper airway irritation and pain caused by

their topical irritant properties, which limits the amount of drug that can be given to the patient. As the disease progresses, patients will require continuous prostacyclin infusion to maximize drug exposure. Infusion pumps present unique risks related to infusion site pain and the risk of blood stream infections, and increase significant limitations on the quality of life of patients.

Delivering prostacyclin analogs locally to the lungs by inhalation has been effective and generates fewer systemic side effects. Inhalation of prostacyclin analogs supplements the endogenous production of prostacyclin where it is normally synthesized, near the targeted pulmonary arteries. As a result, inhalation of prostacyclin analogs helps avoid adverse events related to off-target tissues and takes advantage of binding key prostacyclin receptors that are preferentially expressed in the lung. The only inhaled prostacyclin analogs approved by the FDA are Tyvaso and Ventavis, which both require nebulizers.

Decision Resources Group reported that more than 80% of PAH patients on inhaled therapy in the United States used Tyvaso in 2016. In 2016, Tyvaso and Ventavis generated $405 million and $73 million, respectively, in total sales in the United States. Tyvaso is approved in the United States and Israel but is not approved in Europe and Japan. Tyvaso is indicated for the treatment of PAH to improve exercise ability. The maximum recommended dose of Tyvaso is 54 mcg, delivered four times daily from a proprietary nebulizer, requiring nine breaths for each dose. In a long-term open-label extension study of Tyvaso, patients continued treatment for a mean duration of 2.3 years, with 89% of patients achieving the target dose of 54 mcg, delivered in nine breaths, and 42% achieving a dose of 72 mcg, delivered in 12 breaths.

Ventavis is approved in the United States, Europe and Japan. Ventavis is nebulized six to nine times a day during waking hours, no more than once every two hours, and takes six to ten minutes to administer per use. Ventavis is a synthetic analog of prostacyclin indicated for the treatment of PAH to improve a composite endpoint consisting of exercise tolerance, symptoms and lack of deterioration.

Tyvaso and Ventavis require the use of proprietary nebulizers. Patients must follow specific instructions to set up and operate the device, clean the device daily, locate a power source or use a battery to operate the device, and carry the device and its associated accessories around in a large carrying case, along with distilled water, to administer the treatment throughout the day. As a result, the use of these approved inhaled prostacyclin therapies is typically limited to patients who have not responded to oral medications that target the three pathways. The current medical practice is to administer both an inhaled drug product and the patient's existing oral ERA and/or PDE5 drug product concurrently, instead of withdrawing the administration of the oral drug product upon initiation of the inhaled drug product.

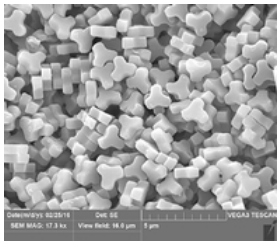
Potential Benefits of Our Approach

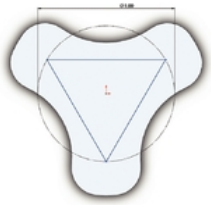
We believe LIQ861 can overcome the limitations of current nebulized therapies and has the potential to maximize the therapeutic benefits of treprostinil in treating PAH by safely delivering higher doses into the lungs using a convenient, palm-sized, disposable DPI. In our Phase 1 trial, LIQ861 was well-tolerated at doses twice as high as the maximum recommended dosage of Tyvaso. These higher doses of inhaled dry powder treprostinil can also be administered in fewer breaths. Each dose of LIQ861 can be administered in one to four breaths, compared to nine breaths for the maximum recommended dosage of Tyvaso. Additionally, we believe LIQ861 may have the potential to improve overall patient adherence and quality of life by offering the convenience of a discrete, palm-sized, disposable DPI. In our market research, patients expressed a preference for a DPI product, noting that it can fit easily into a purse, minimize hassle while traveling and reduce the breaths and time associated with their current nebulized treatments.

The advantages of the LIQ861 product profile are enabled by the PRINT technology. Each LIQ861 particle is designed to enhance delivery and deep-lung penetration. LIQ861 particles are a precise size and highly uniform since particles are formed from mold cavities that exactly match each other. Competing technologies, such as spray-drying, create particles that have a broader variation in shape and size. As a result, particles farther from the mean target size would be too large or too small to reach the intended location in the deep lung.

Inspired by a naturally occurring pollen, LIQ861 PRINT particles have a one micrometer trefoil-shape measured by an inscribed one micrometer circle as shown in the figure below. *In vitro* studies suggest that the uniformity of size and shape allow our inhaled particles to target delivery into the lungs while depositing less in the upper airways. Our independent control of the parameters of drug particles has enabled us to create the first clinically tested formulation that stabilizes treprostinil in an inhaled dry powder formulation.

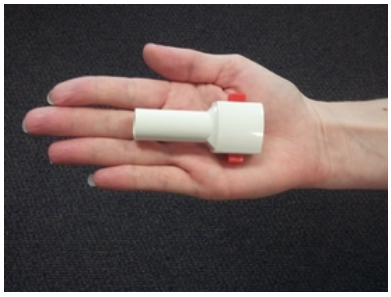
The figures below depict LIQ861, with the figure on the left showing size and shape consistency among particles and the figure on the right showing their trefoil shape:





LIQ861 is administered using RS00 Model 8 DPI, a DPI manufactured by Plastiape, which has been approved in the United States and Europe. This device and its variants have been used in at least eight marketed products globally since 2001, including Novartis's Foradil Aerolizer®, for the treatment of asthma and chronic obstructive pulmonary disease, or COPD.

The picture below shows the DPI used to administer LIQ861:



Clinical Development

In March 2017, we completed a Phase 1 trial of LIQ861 in 57 healthy volunteers. In January 2018, we announced the initiation of INSPIRE, our single, pivotal open-label Phase 3 clinical trial, evaluating LIQ861 for the treatment of PAH in the United States. We expect to announce interim safety data from INSPIRE in the first half of 2019. In the United States, we plan to seek approval of our NDA under the 505(b)(2) regulatory pathway, which would allow us to rely, in part, on the FDA's prior conclusions of efficacy and safety for Tyvaso and the active ingredient treprostinil, which has been approved in four different products administered through the continuous infusion, inhaled and oral routes.

Results of Phase 1 Trial

We conducted a randomized, placebo-controlled, double-blind, Phase 1 trial in 57 healthy volunteer subjects to assess safety, tolerability and pharmacokinetics following a single administration of LIQ861 at doses between 25 mcg and 150 mcg. The subjects were enrolled into six dose cohorts. Within each dose cohort, subjects were randomized to receive LIQ861 or a placebo.

Dose Selection

For the first-in-human study, the initial dose for LIQ861 was chosen based on the indicated dosing for the reference listed drug, Tyvaso. Independent investigations of particle emission using the RS00 Model 8 DPI and simulated inspiration of the bulk powder from a nebulizer led to a projection that a 25 mcg treprostinil capsule for dry powder inhalation would result in approximately similar treprostinil administration as three breaths of Tyvaso, or 18 mcg of treprostinil, the lowest approved dose through nebulization. The following table shows LIQ861's doses tested along with our estimate of the equivalent Tyvaso dose.

Estimated Treprostinil Dose from LIQ861			Estimated Treprostinil Dose from Tyvaso	
Capsule (fill wt.)	Approx. Emitted Dose	Breaths[1]	Approx. Emitted Dose	Breaths[2]
25 mcg	20 mcg	1-2	18 mcg	3
50 mcg	40 mcg	1-2	36 mcg	6
75 mcg	60 mcg	1-2	54 mcg	9
100 mcg	80 mcg	1-2	Above maximum recommended dose	
125 mcg[1]	100 mcg	2-4	Above maximum recommended dose	
150 mcg[1]	120 mcg	2-4	Above maximum recommended dose	

(1) LIQ861 doses between 25 mcg and 100 mcg are single capsules. LIQ861 doses 125 mcg and 150 mcg are two capsules but if approved, they could be developed as single capsules and therefore only require one to two breaths.

(2) Tyvaso (treprostinil) full prescribing information: initial dosage: 3 breaths (18 mcg); maximum recommended dosage: 9 breaths (54mcg)

Our conclusion from this study is that the 75 mcg dose of LIQ861 is approximately equivalent to the maximum recommended dose of 54 mcg, or nine breaths, of Tyvaso, and the 150 mcg dose of LIQ861 is approximately double the maximum recommended dose of Tyvaso.

Safety and Tolerability

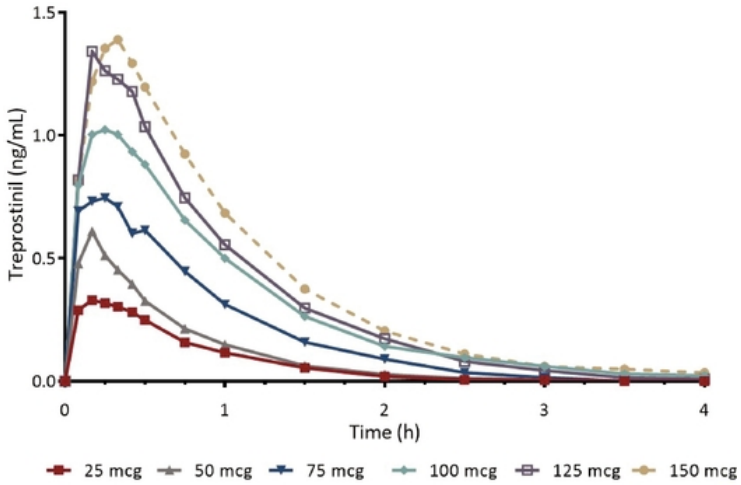
In the clinical trial, we escalated the dosage of LIQ861 progressively from 25 mcg to 150 mcg. There were no dose-limiting toxicities at the highest dose evaluated. We noted no serious adverse events or deaths and all reported treatment-emergent adverse events were mild. The most frequent adverse event reported by subjects on LIQ861 was mild cough and throat irritation.

We did not observe a proportional increase of treatment-emergent adverse events as the doses were escalated from 25 mcg to 100 mcg. No treatment-emergent adverse events were observed in subjects who received the placebo PRINT particles that contained only excipients.

Pharmacokinetics

In the trial, the LIQ861 plasma levels increased proportionally as the dosage of LIQ861 increased, as shown in the graph below. At higher doses, 50% of subjects receiving LIQ861 had measurable treprostinil after four hours, which could indicate the potential to minimize symptoms between dosing cycles.

LIQ861 Mean Concentration Over Time



The pharmacokinetic parameters in the table below were estimated from plasma samples. Nominal elapsed time from dosing was used to estimate all individual pharmacokinetic parameters, including:

- § C_{max} Maximum observed plasma concentration;
- § T_{max} Time of maximum concentration;
- § $T_{1/2}$ Terminal-phase half-life; and
- § AUC_{Inf} Area under the plasma concentration-time curve.

LIQ861 Pharmacokinetic Results

	Treprostinil by Dose (mcg)					
	25	50	75	100	125	150
C_{max} (ng/mL)	0.329	0.572	0.728	1.08	1.19	1.33
T_{max} (h)	0.21	0.18	0.25	0.29	0.24	0.31
$T_{½}$ (h)	0.507	0.434	0.617	0.722	0.523	0.648
AUC_{Inf} (h*ng/mL)	0.285	0.428	0.766	1.22	1.16	1.50

The LIQ861 blood levels, as determined by the area under the curve, which is a pharmacokinetic measurement of drug exposure in blood plasma over time, and the maximum concentration were similar to the data used in connection with the approval of Tyvaso, as reported in the FDA Summary Basis of Approval for Tyvaso. LIQ861 also had half-life in the blood similar to such data. These results suggest that our formulation has not changed the pharmacokinetic profile of inhaled treprostinil.

Results of Non-Clinical Studies

The pharmacology, pharmacokinetics and toxicology of treprostinil are well understood, having previously been characterized to support approval of Remodulin, which is treprostinil administered through subcutaneous or intravenous infusion, Orenitram®, which is treprostinil administered through extended release tablets, and Tyvaso, which is treprostinil inhaled through a proprietary nebulizer. We plan to rely in part on the data used in support of FDA approval of these treatments, in addition to our own toxicity studies, to support the development and approval of LIQ861.

In October 2016, we completed a 14-day, repeat dose, inhalation toxicity study in rats to support the Phase 1 trial. In August 2017, we completed a 26-week toxicology study in rats. In rats, pharmacokinetic profiles at the end of 14 days of LIQ861 treatment were generally similar to inhaled nebulized treprostinil delivered at similar treprostinil dose levels. Following 26 weeks of daily dosing, treprostinil exposure was slightly higher in LIQ861-treated rats. The results from this study support chronic outpatient dosing of LIQ861 in patients with PAH in our Phase 3 trial.

Phase 3 Trial

In January 2018, we announced the initiation of INSPIRE, our single, pivotal Phase 3 trial evaluating LIQ861 at doses between 25 mcg and 150 mcg for the treatment of PAH in the United States. INSPIRE is an open-label trial enrolling at least 100 patients with PAH across multiple sites in the United States. Primary endpoints are long-term safety and tolerability of LIQ861. Patients enrolled will have been on stable doses of Tyvaso for at least three months or will have been taking no more than two approved non-prostacyclin oral PAH therapies. A subset of patients will be enrolled in a one-directional crossover to compare bioavailability and pharmacokinetics of treprostinil as they transition from Tyvaso to LIQ861. We expect to announce interim safety data from INSPIRE in the first half of 2019.

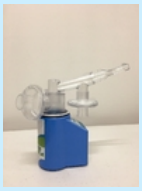
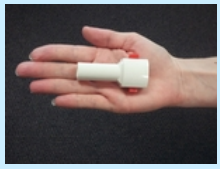
Additional Clinical Trials

We also intend to initiate a clinical trial in the second half of 2018 that explores the hemodynamic effects of LIQ861 in PAH patients. Although the FDA has not requested that we undertake this clinical trial, the data may help assess the effects of LIQ861 on acute and chronic hemodynamic measurements and right heart function. Data from this clinical trial would also add to our understanding of safety, tolerability and pharmacokinetics of LIQ861.

Commercial Opportunity

Decision Resources Group estimated that sales for all major PAH drugs in 2016 were more than $6.0 billion in the United States, France, Germany, Italy, Japan and the United Kingdom. In the United States, products approved to treat PAH through the prostacyclin deficient pathway generated approximately $1.7 billion in sales in 2016, of which the prostacyclin analog treprostinil generated the majority from products formulated for continuous infusion, inhalation using a nebulizer and oral delivery. The U.S. market for inhaled treatments through the prostacyclin deficient pathway was more than $450 million in 2016, of which Tyvaso accounted for more than 80%.

If approved, we believe LIQ861 would be the first inhaled dry powder formulation of treprostinil delivered using a convenient, palm-sized, disposable DPI. The dosing regimens and patient experience for the two approved inhaled therapies compared to the expected product profile of LIQ861 are shown in the following table.

	Ventavis (iloprost) inhalation solution	Tyvaso (treprostinil) inhalation solution	LIQ861 (treprostinil) dry powder for inhalation (expected)
Regulatory status	FDA approved, 2004	FDA approved, 2009	Enrolling Phase 3 study
Method of administration	Proprietary nebulizer	Proprietary nebulizer	Dry powder inhaler
Frequency	6 to 9 times daily	4 times daily	4 times daily
Dose range	2.5 to 5 mcg	18 to 72 mcg; (max recommended is 54 mcg)	25 to 150 mcg
Time or breaths per dose	4 to 10 minutes depending on breathing pattern	9 breaths (54 mcg)	1-2 breaths per capsule, with 1 or 2 capsules per dose
Supplies required	§ Ventavis Inhalation System § Power supply § Distilled water § 2 medication chamber assemblies § Washing basket § Battery charger § I-neb pouch § Carry bag § Power cord for charger § 2 Spare discs	§ Tyvaso Inhalation System § Rechargeable battery § 12V DC adapter § AC wall plug § 16 Medicine cups § Filter membranes § Plugs § Filter shell § Dome assembly with baffle plate § Inhalation piece § Mouthpiece § Water level cup § Carrying case § Distilled water carrier	§ Dry powder inhaler § Carrying pouch § Daily blister pack § Small cleaning brush
Picture			

Preferred choice within inhaled options. As reported in our market research, physicians and patients expressed a clear preference for the expected product profile of LIQ861 over current nebulized therapies, primarily due to the ease and convenience of administration of LIQ861. Nebulized therapies require more time and breaths than LIQ861, as well as daily and weekly assembly, disassembly and cleaning.

Attractive switch from orals. The ease and range of dosing LIQ861 may be attractive to patients who are in earlier stages of the disease, but poorly managed on oral prostacyclin products. Local delivery of treprostinil to the lung offers fewer systemic side effects. However, we believe some of these patients are hesitant to switch to more burdensome nebulized options.

Delay transition to continuous infusion. We are investigating a wide range of LIQ861 doses in order to maximize patient exposure to treprostinil, a key factor in the efficacy of prostacyclin analogs. In our Phase 1 trial, LIQ861 was well-tolerated at levels that we estimate are twice the maximum recommended dose of Tyvaso. We believe the dose range enabled by LIQ861 would allow patients to titrate to higher levels of treprostinil and potentially extend the time on inhaled therapy, delaying the eventual transition to continuous infusion.

Expand inhaled options outside the United States. We intend to develop and seek regulatory approval for LIQ861 for markets outside of the United States in order to provide an attractive choice that leverages the benefits of local delivery to the lung. Tyvaso is approved in the United States and Israel but is not approved in Europe and Japan. Ventavis is approved in the United States, Europe and Japan, but its use has been limited due to its delivery regimen. Decision Resources Group estimated that fewer than 10% of PAH patients in the United Kingdom, Germany, France, Italy and Spain, which we collectively refer to herein as the 5EU, use Ventavis. In Japan, Ventavis was approved in May 2016 as the first inhaled PAH treatment. The combined population of PAH patients in the 5EU and Japan was estimated to be more than 25,000 patients in 2016.

Expand beyond WHO Group I patients (PAH). Prostacyclin based therapies have only been approved for WHO Group I patients. However, prostacyclin analogs may have utility in the treatment of PH in other categories, as suggested by current off-label use in WHO Group III, which includes individuals with pulmonary hypertension secondary to lung diseases or hypoxemia, and WHO Group IV, which includes individuals with chronic thromboembolic pulmonary hypertension. Although we have no current plans to study LIQ861 in PH patients outside of WHO Group I, we will continue to monitor the investigations conducted by other companies and independent investigators of prostacyclin analogs, especially Tyvaso. If Tyvaso is approved for additional indications, the path for seeking approval of LIQ861 in the same indications should be made clear and could quickly follow. For example, United Therapeutics Corporation is actively studying Tyvaso in a Phase 3 trial of a subpopulation of WHO Group III subjects with pre-capillary PH with interstitial lung disease, including combined pulmonary fibrosis and emphysema, with an estimated prevalence of 27,500 patients globally in this subpopulation. By 2025, the diagnosed prevalence of all WHO Group III sub-types is expected to grow to over 250,000 patients in the United States, 5EU and Japan. WHO Group IV includes patients diagnosed with chronic thromboembolic pulmonary hypertension, or CTEPH. While considered underdiagnosed and undertreated, the current estimates for diagnosed prevalence of CTEPH in 2015 are between 2,000 and 6,500 patients in the United States and more than 10,000 patients in the 5EU and Japan.

Competition in PAH

If approved, LIQ861 would be one of several prostacyclin based products that can be used to manage a patient's disease. Initially, it would be positioned between the use of oral options and the continuous infusion of prostacyclin analogs.

In the inhaled category, the primary competitor for LIQ861 would be Tyvaso, the nebulized inhaled treprostinil. Tyvaso is administered by a proprietary nebulizer device four times per day. In addition to Tyvaso, LIQ861 would compete with inhaled iloprost, which is marketed as Ventavis in the United States by Actelion Pharmaceuticals Ltd, a subsidiary of Johnson & Johnson, and in Europe by Bayer Schering Pharma AG. Ventavis is administered by a proprietary nebulizer device six to nine times per day.

There would be additional competition from oral products in the prostacyclin pathway, including oral treprostinil, marketed as Orenitram by United Therapeutics Corporation, selexipag, marketed as Uptravi by Actelion Pharmaceuticals Ltd., and ralinepag, being studied in a Phase 3 clinical trial by Arena

Pharmaceuticals, Inc. These oral options may be used by a patient earlier in the disease cycle than LIQ861. However, we believe that LIQ861 could offer an attractive option for patients who are in earlier stages of the disease, but poorly managed on oral prostacyclin products.

Continuously infused prostacyclins include epoprostenol, marketed by multiple companies as generic and branded products, and treprostinil, marketed as Remodulin by United Therapeutics Corporation. These options are considered to offer the greatest efficacy and are usually prescribed to patients later in the disease. Infusion pumps present unique risks related to infusion site pain and the risk of blood stream infections, creating major limitations on the quality of life of patients.

We expect our other competitors could include potential new entrants such as MannKind Corporation, who has recently filed an IND and initiated a Phase 1 trial for a treprostinil product that applies a proprietary technology to form microparticles in an inhaled dry powder. We also expect generic equivalents of Tyvaso may eventually enter the market following the expiry or invalidity of Tyvaso's patents, which are currently being challenged by a generics company.

LIQ865

Our second product candidate, LIQ865, which is designed using PRINT technology, is an injectable, sustained-release formulation of bupivacaine for the management of local post-operative pain for three to five days after a procedure, which we believe, if approved, would have the potential to provide significantly longer post-operative pain relief compared to currently marketed formulations of bupivacaine.

Background on Post-Operative Pain

The treatment of post-operative pain typically involves multi-modal therapy including the administration of local anesthetics after surgery. Although local anesthetics provide a well-established, safe and efficacious option for post-operative pain management, the duration of efficacy for conventional local anesthetics, including bupivacaine and lidocaine, is limited, with the pain relief typically lasting for eight hours or less. Because post-operative pain may continue to be severe for several days following the surgery, additional therapies are required. These therapies include morphine and other opioids administered through intravenous systems or orally, as well as various non-opioids, including acetaminophen and NSAIDs, like ibuprofen and ketorolac.

Current Therapies and Their Limitations

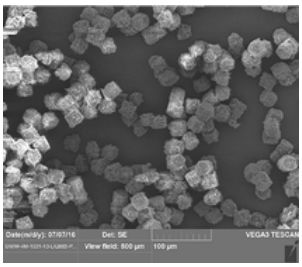
Opioids are the mainstay of post-operative pain management, but they are associated with a variety of unwanted and potentially serious or life-threatening side effects such as sedation, nausea, constipation, cognitive impairment, respiratory depression and death. In addition, opioids may be administered through patient-controlled analgesia systems, which may interfere with or delay patient ambulation and require significant hospital resources to implement and monitor. Furthermore, exposure to opioids for as little as four days can lead to increased risk of chronic opioid use. The risk of opioid abuse and diversion has led physicians, payors and the U.S. federal government to prioritize pain management strategies that minimize the use of opioids.

NSAIDs and other non-opioids for pain relief in the post-operative period are also associated with various undesirable side effects. Bleeding and gastrointestinal and renal complications may result from NSAID use. Acetaminophen can cause liver injury or failure with excessive dosing. As a result, we believe there is demand from healthcare providers and patients for post-operative pain relief therapies that can help prevent these issues.

Local anesthetics such as bupivacaine hydrochloride, or Marcaine, and lidocaine have been safely used for post-operative pain for decades, but have a duration of effect limited to less than eight hours. Approved in 2011, EXPAREL is a long-acting local anesthetic that involves an injection of bupivacaine in a multivesicular liposome carrier at the surgical site and is marketed in the United States by Pacira Pharmaceuticals, Inc. Physicians report that EXPAREL typically provides postsurgical analgesia for only 24 to 36 hours in practice, and market research we conducted suggests that physicians desire longer duration of effect to better manage local post-operative pain. In addition, because the interactions between the liposomal formulation of EXPAREL and co-administered local anesthetics can result in rapid release of bupivacaine, co-administration of other local anesthetics is inadvisable.

Potential Benefits of Our Approach

Using our PRINT technology, we have developed a particle formulation of bupivacaine that, if approved for marketing, will be used to manage local post-operative pain. We engineered the size and composition of LIQ865 particles to slowly release bupivacaine with the goal of providing patients with local pain relief for three to five days through a single administration, which we believe would provide significantly longer post-operative pain relief compared to currently marketed formulations of bupivacaine. The figure below depicts LIQ865, showing size consistency among particles.



LIQ865 is administered as a suspension and is easily injected at the surgical site. Because the molded drug particles are highly stable, we believe the potential for dose dumping, the unintended rapid drug release of bupivacaine from the carrier, would be minimized with LIQ865. In a non-clinical study, co-administration of LIQ865 with lidocaine did not cause early release of bupivacaine or otherwise negatively affect the pharmacokinetic profile of LIQ865. LIQ865 was engineered to be rapidly reconstituted and administered by injection. Unlike other sustained-release formulations, we do not expect LIQ865 will be constrained by a specific ratio of drug to diluting agent so its reconstitution volume can be adjusted based on the volume needs of a particular procedure. Furthermore, because particle-to-particle uniformity in size and composition is key to determining drug release rates, the particle-to-particle and batch-to-batch uniformity of our LIQ865 particles creates consistent release rates.

Results of Non-Clinical Studies

We commissioned an animal efficacy study of two formulations of LIQ865 in a rat perineural sciatic model, which was completed in January 2016. LIQ865 showed an extended pharmacokinetic profile and duration of nerve sensory block and the potential for extended post-operative pain management. Additionally, we evaluated the safety and tolerability of LIQ865 in a rat toxicology study in 2016. The results of this study supported advancing LIQ865 to human clinical trials.

Clinical Development

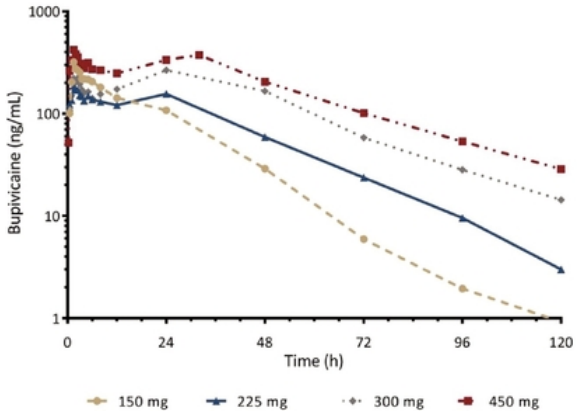
In March 2017, we completed our Phase 1a trial in Denmark to evaluate the safety and tolerability profile of two different PRINT formulations of bupivacaine: LIQ865A, consisting of particles combining bupivacaine and polylactic-glycolic acid, a polymer widely used in sustained-release drug products and surgical sutures; and LIQ865B, consisting of particles of bupivacaine alone, in a proprietary diluting agent. We observed a dose-response relationship in this trial, and all doses were well-tolerated. The results from the Phase 1a trial helped inform our selection of LIQ865A for further investigation in the United States. We filed an IND application in the United States in June 2017 and initiated a Phase 1b trial in the United States in September 2017 using an experimental pain model in healthy adults with quantitative sensory testing. We completed the U.S. Phase 1b trial in April 2018. We expect to initiate Phase 2-enabling toxicology studies in the second half of 2018. In the United States, we plan to rely in part on the 505(b)(2) regulatory pathway for our NDA submission to the FDA for LIQ865, which would allow us to rely on the FDA's prior determinations of safety and efficacy for other products containing bupivacaine, such as Marcaine and EXPAREL.

Results of Phase 1 Trials

Our Phase 1a trial was a randomized, double-blind, controlled, single ascending dose, safety, pharmacokinetic and pharmacodynamic trial of LIQ865A and LIQ865B in 28 healthy male volunteers at a single site in Copenhagen, Denmark. The study design included dosing multiple cohorts, or groups, each receiving increasing bupivacaine doses as either LIQ865A or LIQ865B: 150 mg, 225 mg, 300 mg, 450 mg or 600 mg. The LIQ865 formulation was injected into the upper calf in one leg, and the other leg received the diluting agent without LIQ865 particles. The primary objective of this Phase 1 clinical trial was to evaluate the safety and tolerability profile of the two formulations of LIQ865. We also assessed bupivacaine pharmacokinetic and pharmacodynamic responses.

Based on the results of the Phase 1a trial, we selected the LIQ865A formulation for further development, and all of our references to LIQ865 are to this formulation. Results for 15 volunteers who received LIQ865A in this Phase 1 trial are shown below. The graph shows the mean plasma concentration of bupivacaine over 120 hours comparing the 150 mg, 225 mg, 300 mg and 450 mg dose cohorts of LIQ865A formulation, expressed on a logarithmic, or log, scale.

LIQ865A Log Linear Mean Concentration Over Time



A dose-response relationship was observed, with the plasma levels increasing as the dosage level of LIQ865 increased. Doses of LIQ865 up to 600 mg of bupivacaine were well-tolerated in the trial. All adverse events were mild to moderate in severity, and most adverse events were limited locally at the site of injection, with most related to sensory block of underlying sensory branches of the saphenous nerve in the leg.

At the 450 mg dose of LIQ865, all subjects had maximum concentration values below 800 ng/ml, which is well below the reported thresholds for neurotoxicity and cardiac toxicity of 2000 and 4000 ng/mL, respectively. The pharmacokinetic and pharmacodynamic profile for this dose suggested a sustained duration of effect, with nearly all subjects receiving this dose reporting at least three days of sensory blunting in response to quantitative sensory testing. LIQ865 also showed rapid onset of action at the one-hour time point in all subjects, even at the lowest dose of 150 mg. Additionally, we observed a sensory block of distal sensory branches of the saphenous nerve below the knee in eight of nine subjects who received 450 mg doses of LIQ865. This sensory block lasted at least three days, which we believe further supports the duration profile of LIQ865.

In March 2017, we met with the FDA at a pre-IND meeting and verified that the current Chemical Manufacturing and Control, or CMC, and preclinical package were "phase-appropriate" and sufficient to support our initial U.S. Phase 1 trial.

Following our submission of the IND for LIQ865, we initiated our U.S. Phase 1b clinical trial in September 2017, which was completed in April 2018. This trial used an experimental pain model in healthy male and female subjects with quantitative sensory testing after an injection of LIQ865 at doses of 150 mg, 300 mg and 450 mg. The experimental pain model was designed to simulate post-operative pain for up to five days through a combination of localized ultraviolet B burn and mini-incision. Additionally, the trial included a cross-over design to compare LIQ865 to EXPAREL. We observed that LIQ865 was well-tolerated across the dose ranges. All adverse events were mild to moderate, and no dose limiting toxicities were noted. The pharmacokinetic profiles were similar to what was seen in the Phase 1a trial. Pharmacodynamic effects were highly variable and inconclusive, which we associated with the experimental design of the pain model used in the Phase 1b trial.

Plans for Phase 2 Development

At our pre-IND meeting in March 2017, the FDA requested two additional toxicology studies prior to the initiation of Phase 2 trials. Accordingly, in the second half of 2018, we plan to conduct a bone fracture healing study in rats and a hernia repair study in mini-pigs. If the FDA finds these studies sufficient to support proceeding with our clinical development plan, upon successful completion, we plan to initiate Phase 2 trials subject to the availability of sufficient funding, or a partner in the event we elect to license LIQ865 to a third party. The Phase 2 trials are currently planned as ascending dose, active comparator studies in bone and soft tissue models designed to identify the minimum and optimal effective dose of LIQ865 to achieve three or more days of pain relief. We expect that this dose would be carried forward into Phase 3 development.

Competition

The primary competitor for LIQ865, if approved, would be liposomal bupivacaine, marketed as EXPAREL by Pacira Pharmaceuticals, Inc. We are aware of other long-acting local anesthetic products in clinical development from DURECT Corporation, Innocoll Holdings plc and Heron Therapeutics, Inc. as well as generic equivalents of EXPAREL, which may enter the market following the expiry of EXPAREL's patent in 2018. In addition to long-acting local anesthetics, there are a number of indirect competitors in development, including clinical-stage opioids and development-stage molecules that pursue the treatment of pain through alternative pathways.

Our PRINT Technology

Both LIQ861 and LIQ865 are being developed using our proprietary PRINT particle engineering technology, which allows us to engineer and manufacture highly uniform drug particles with independent control over the size, three-dimensional geometric shape and chemical composition of the particles. By controlling these physical and chemical parameters of particles, PRINT enables us to engineer desirable pharmacological benefits into product candidates, including prolonged duration of drug release, increased drug loading, more convenient routes of administration, the ability to create novel combination products, enhanced storage and stability and the potential to reduce adverse side effects. Controlling three-dimensional geometric shape and chemical composition of drug particles enables us to research, identify and pursue the improvement of existing therapies and creation of new therapies from existing drugs or new chemical entities, including small molecules and biologics.

Our ability to design and control these features of drug particles has the potential to provide significant benefits across the breadth of pharmaceutical applications. Product characteristics and features can be tuned depending on the need of a particular application, drug substance, delivery route and other such considerations. Based on our research to date, we anticipate the ability to: (i) enhance inhaled delivery through the highly uniform geometric shape of each drug particle; (ii) design desired drug release profiles

ranging from minutes post-delivery to days, weeks or months depending on need of a target therapy, by controlling the chemical composition of the drug particles and the surface area-to-volume ratio of the particles; (iii) enable combination products where one or more of the chemical constituents can destabilize or interact by encapsulating the desired constituent in a particle to shield it from another constituent during packaging and storage; and (iv) enhance the deposition and retention of topically delivered products by designing particles with a desired charge and/or Young's modulus.

Besides using our PRINT technology to develop our two product candidates, LIQ861 and LIQ865, we have exclusively licensed our PRINT technology to (i) GSK, a market leader in respiratory therapies, for applications broadly across inhaled delivery of their small molecule and biologic chemical entities, although we retained the ability to develop LIQ861; and (ii) Aerie Pharmaceuticals, Inc., which acquired most of the assets of Envisia Therapeutics, Inc. in 2017, for broad usage in the design and commercialization of small molecule and biologic ophthalmic therapies.

Our molding approach, which we branded as "PRINT" or Particle Replication In Non-wetting Templates, combines the precision of the semi-conductor industry with the high throughput of roll-to-roll manufacturing to make highly uniform micro- and nano-particles at a commercially viable scale. Our manufacturing equipment and materials used in the production of our drug particles are proprietary and protected by our patent portfolio and trade secret know-how. Our PRINT equipment is also modular, scalable and cost-effective.

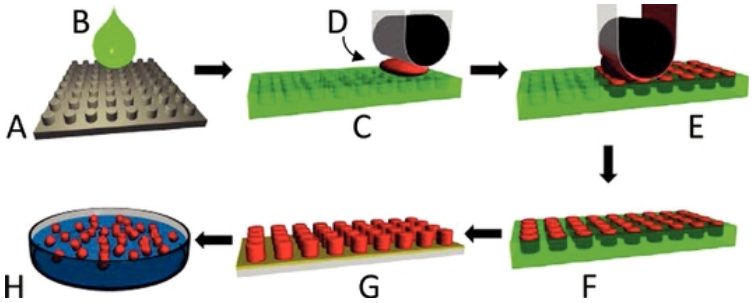
Our PRINT Process

We begin our particle design by procuring a custom designed master template etched with three-dimensional structures, or posts, that will become the eventual shape and size of our drug particles. These three-dimensional structures are then replicated in negative form, through our proprietary processing into flexible rolls of polymeric PRINT molds. Our PRINT molds consist of thousands of linear feet of thin flexible molds up to twenty-four inches wide. We then design and formulate our desired drug particle composition and apply that to our PRINT molds in our high-throughput roll-to-roll processing equipment, with each particle mimicking the shape of the mold cavity from which it was molded, thus taking the shape of the original master template structures.

The general components and steps of our PRINT molding are as follows:

- Etch a master template with the three-dimensional geometric structures of the desired particle size and shape (step A in the diagram below);
- Apply our proprietary polymeric mold material over the master template (step B) and cure the polymeric material to form our PRINT molds with discrete molding cavities that replicate the structures of the master template (step C);
- Design the chemical composition of the drug particle of interest (step D);
- Apply the drug particle composition to the cavities in the mold to fill the cavities (step E);
- Form the drug particles in the cavities of the mold that mimic the size and shape of the mold cavities (step F);
- Remove the drug particles from the mold cavities on a harvesting film (step G); and
- Remove the particles from the harvesting film for further functionalization, purification or packaging to be included in the final drug particle product (step H).

The diagram below shows the general steps involved in producing drug particles using our PRINT technology:



We have translated the PRINT process into a continuous, roll-to-roll manufacturing process that we believe is compliant with cGMP and scaled to support clinical and commercial production, when required. One of our current manufacturing lines is shown below:

Manufacturing and Supply

Our facilities occupy approximately 41,000 square feet and are located in Morrisville, North Carolina. Within these premises, there are office space, research and development laboratories and equipment, analytical development and quality control laboratories, research, development and mold production facilities, research and development particle fabrication equipment, including two operational PRINT particle fabrication lines, both of which we believe are cGMP-compliant, as well as appropriate staging, storage and stability facilities. These two operational PRINT particle fabrication lines are located within class ISO7 clean rooms that operate under applicable ISO and cGMP air quality and environmental requirements.

We currently produce in this facility the product candidates for our and our collaborators' preclinical studies and clinical trials. Our current operational PRINT particle fabrication lines are scaled and capable of producing the necessary materials to support our ongoing operations and planned studies and clinical trials and, we believe, ultimately commercial scale manufacturing. The production capacity for each PRINT particle fabrication line within our production facility varies depending on the drug particle that is being produced.

We have expanded our production facility by installing an additional PRINT particle fabrication line, which was completed in March 2018 and is intended to further increase our production capacity and capability in anticipation of the commercial production of LIQ861 and LIQ865, if and when we receive marketing approval for them. The capital expenditures for leasehold improvements in our facility related to this additional fabrication line will be financed through reimbursement allowances provided by the landlord.

If and when we receive marketing approval for our product candidates, we may, from time to time, rely on third-party CMOs to produce, package and distribute some or all of our approved drug products on a commercial scale.

We also depend on third-party suppliers for clinical supplies, including active pharmaceutical ingredients which are used in our product candidates. For example, we currently rely on a sole supplier, LGM Pharma, for treprostinil, the active pharmaceutical ingredient of LIQ861, and we currently rely on a sole supplier, Plastiape, for RS00 Model 8 DPI, the DPI used to administer LIQ861.

Our Collaboration and Licensing Agreements

In addition to advancing our own product candidates, we have collaborated with leading pharmaceutical companies to develop their own product candidates across a wide range of therapeutic areas, molecule types and routes of administration, leveraging our PRINT technology. These collaborations are intended to help advance new PRINT capabilities and build upon our competitive advantage in the pharmaceutical industry, while adding to our intellectual property portfolio.

GlaxoSmithKline

We have actively collaborated with GSK on the use of our PRINT technology in respiratory disease. In June 2012, we entered into an Inhaled Collaboration and Option Agreement, or the GSK ICO Agreement, with GSK to collaborate on research regarding the application of our PRINT technology to specified inhaled therapies. Pursuant to the GSK ICO Agreement, we granted GSK exclusive options and licenses to further develop and commercialize such inhaled therapies using our PRINT technology. In partial consideration of the rights granted to GSK under the GSK ICO Agreement, we received a one-time up-front payment of $4.0 million. We also entered into a stock purchase agreement with GSK pursuant to which GSK purchased 4,765,248 shares of our Series C-1 convertible preferred stock for an aggregate of $3.8 million. In September 2015, GSK exercised its option to obtain an exclusive, worldwide license to certain of our know-how and patents relating to our PRINT technology, for the purpose of, among others, preclinical studies of inhaled therapeutics developed, manufactured or otherwise produced using our PRINT technology. In connection with the grant of this license, we received a one-time option exercise fee of $15.0 million. Under the terms of the GSK ICO Agreement, we are also entitled to continued research and development funding, certain milestone payments aggregating up to $158 million upon the achievement of specified milestone events, as well as tiered royalties on the worldwide sales of the licensed products at percentages in the mid-single digits. In February 2016, we received a $3.0 million payment from GSK upon the achievement of a clinical development milestone.

GSK has the right to terminate the GSK ICO Agreement in its entirety or on a product-by-product basis upon a specified period of prior written notice. Upon termination of the GSK ICO Agreement, each party will continue to have the right to practice and/or license its interest in any know-how developed during the collaboration without seeking the consent of, or accounting to, the other party.

As of April 30, 2018, GSK is conducting a Phase 1 trial of an inhaled chronic obstructive pulmonary disease, or COPD, candidate that is formulated as an inhaled, dry powder using the PRINT technology. Through this collaboration, we have worked, and anticipate continuing to work, together with GSK to advance inhaled therapeutic products into clinical studies.

The University of North Carolina at Chapel Hill

In December 2008, we entered into the Amended and Restated License Agreement with UNC for the use of certain patent rights and technology relating to initial innovations of our PRINT technology, or the UNC License. Under the terms of the UNC License, we have an exclusive license to such patent rights and technology for our drug products. The UNC License grants us the right to grant sublicenses to the technology as well as control the litigation of any infringement claim instituted by or against us in respect of the licensed patent rights. We are also responsible for the costs of all expenses associated with the prosecution and maintenance of the patents and patent applications. Such filings and prosecution will be carried out by UNC and in UNC's name but under our control.

Under the UNC License, we are required to pay UNC royalties equal to a low single digit percentage of all net sales of our drug products whose manufacture, use or sale includes any use of the technology or patent rights covered by the UNC License, as well as tiered royalty percentages ranging in the low single digits of sales by our sublicensees for any product covered by rights under a sublicense agreement granted pursuant to the UNC License. Under the UNC License, we are also required to pay UNC 20% of all fees other than royalties that we collect and are attributable to UNC sublicensed intellectual property. As consideration for the UNC License, we paid UNC a license issue fee in the form of 196,469 shares of our Class B non-voting common stock in 2004. During the term of the UNC License, we have also paid approximately $2.9 million in the aggregate to UNC pursuant to a Supported Research Agreement, or the SRA. In connection therewith, we may exclusively license resulting inventions under the SRA for a $5,000 up-front license fee per invention. We have also paid aggregate consideration of $5.7 million in sublicense fees to UNC pursuant to the UNC License, for our sublicenses of our PRINT technology to GSK and G&W Labs, as described above. We also reimburse UNC for its costs of procuring and maintaining the patents we license from UNC. Such reimbursements amounted to $180,943 for the year ended December 31, 2016. Effective November 2017, we have satisfied all substantive milestones associated with our UNC License other than semi-annual and annual reporting-based milestones that continue through the term of the UNC License. The UNC License expires (i) on the expiration of the last to expire patent included in the patent rights or (ii) if no patents mature from such patent rights, in December 2028.

We have the right to terminate the UNC License upon a specified period of prior written notice. UNC may terminate the UNC License in certain circumstances, including if we fail to pay royalty or other payments on time or if we fail to sublicense in accordance with the terms of the UNC License. Upon termination of the UNC License, we must pay any royalty obligations due upon termination.

Intellectual Property

The proprietary nature and protection of our product candidates, their methods of use and our platform technology that enables our product candidates are an important part of our business strategy of rapidly developing and commercializing new medicines that address areas of significant unmet medical needs.

Our policy is to seek patent protection of our proprietary product candidates and technology by filing U.S., international and certain foreign patent applications covering certain of our proprietary technology, inventions, improvements and product candidates that are important to the growth and protection of our business. We also rely on trade secrets to protect aspects of our business that are not amenable to patent protection or where we do not consider patent protection to be adequate or applicable.

Our success depends, in part, on our ability to obtain and maintain patent and other protection for our product candidates, enabling technology, inventions and know-how and our ability to defend and enforce these patents, preserve the proprietary nature of our trade secrets and operate our business without infringing valid and enforceable patent and other proprietary rights of third parties. We pursue both composition-of-matter patents and method-of-use patents for our product candidates. We are also pursuing patents covering our proprietary PRINT micro- and nano-particle fabrication technology.

The term of individual patents depends upon the legal term for patents in the countries in which they are granted. In most countries, including the United States, the patent term is generally 20 years from the earliest filing date of a non-provisional patent application to which the patent claims priority in the applicable country. In the United States, a patent's term may, in certain cases, be lengthened by patent term adjustment, or PTA, which compensates a patentee for administrative delays by the U.S. Patent and Trademark Office, or the USPTO, in examining and granting a patent, or may be shortened if a patent is terminally disclaimed over a commonly owned patent or a patent naming a common inventor and having an earlier expiration date. The Patent Term Restoration Act of 1984, as amended, or the Hatch-Waxman Act, permits a patent term extension, or PTE, of up to five years beyond the expiration date of a U.S. patent as partial compensation for the length of time the drug is under regulatory review while the patent is in force. A PTE cannot extend the remaining term of a patent beyond a total of 14 years from the date of product approval, and only one patent applicable to each regulatory review period may be extended. Further, only those claims covering the approved drug, a method for using it or a method for manufacturing it may be extended and the extension only applies to the approved drug, method for using it or method for manufacturing it for which the extension was obtained. Similar provisions are available in Europe and certain other foreign jurisdictions to extend the term of a patent that covers an approved drug.

We are the owner or exclusive licensee of patents and applications relating to our proprietary technology platform and our product candidates, and are pursuing additional patent protection for these and for our other product candidates and technology developments.

We have a total of 122 patents and pending patent applications in our patent portfolio. As of April 30, 2018, we were the sole owner of 14 patents in the United States and 21 patents in foreign jurisdictions, as well as approximately 17 additional pending patent applications, including provisional patent applications, in the United States, Europe, Japan and other jurisdictions. In addition to the patents and patent applications owned solely by us, our patent portfolio also includes 51 patents and 19 patent applications licensed from third parties. As of April 30, 2018, we had an exclusive, worldwide license from UNC to 17 U.S. patents and 33 foreign patents, as well as 15 additional patent applications in the United States or selected foreign jurisdictions. Eight of the patents and two of the patent applications in the portfolio licensed from UNC are jointly owned by us.

With regard to our LIQ861 product candidate, as of April 30, 2018 our owned or in-licensed patents and patent applications that are directed to aspects of the PRINT technology utilized in LIQ861 include:

- U.S. Patent No. 8,263,129, which includes claims directed to methods of forming substantially uniform particles and is expected to expire on January 14, 2029, including 1486 days of PTA and assuming payment of all maintenance fees;
- U.S. Patent No. 8,420,124, which includes claims directed to a plurality of monodisperse particles and is expected to expire on August 19, 2028, including 1338 days of PTA and assuming payment of all maintenance fees;
- U.S. Patent No. 9,877,920, which includes claims directed to a plurality of particles and is expected to expire on December 20, 2024, assuming payment of all maintenance fees;
- U.S. Patent No. 8,439,666, which includes claims directed to laminate molds and is expected to expire on December 4, 2026, assuming payment of all maintenance fees;
- U.S. Patent No. 8,662,878, which includes claims directed to molds and mold systems and is expected to expire on December 4, 2026, assuming payment of all maintenance fees;
- U.S. Patent Nos. 8,945,441 and 9,662,809, which include claims directed to methods of making laminate molds and are each expected to expire on December 4, 2026, assuming payment of all maintenance fees;
- U.S. Patent No. 7,976,759, which includes claims directed to methods of forming nanoparticles and is expected to expire on October 13, 2028, assuming payment of all maintenance fees;

- U.S. Patent No. 9,545,737, which includes claims directed to methods of forming pharmaceutical particles and is expected to expire on April 22, 2029, including 191 days of PTA and assuming payment of all maintenance fees;
- U.S. Patent No. 8,444,907, which includes claims directed to methods for fabricating a substantially seamless pattern and is expected to expire on June 28, 2031, including 572 days of PTA and assuming payment of all maintenance fees; and
- U.S. Patent No. 9,744,715, which includes claims directed to methods for fabricating a substantially seamless pattern and is expected to expire on December 3, 2029, assuming payment of all maintenance fees.

As of April 30, 2018, we were sole owner of one pending international patent application, PCT/US17/31301, specifically directed to our LIQ861 product candidate. PCT/US17/31301 includes claims directed to dry powder inhalation compositions, methods of using such compositions treating a patient with PAH and methods of making such compositions. Any patents that may issue from PCT/US17/31301 are expected to expire on May 5, 2037, absent any terminal disclaimers, patent term adjustments or extensions and assuming payment of all maintenance fees.

With regard to our LIQ865 product candidate, as of April 30, 2018, our owned or in-licensed patents and patent applications that cover aspects of the PRINT technology utilized in LIQ865 include:

- U.S. Patent No. 8,263,129, which includes claims directed to methods of forming substantially uniform particles and is expected to expire on January 14, 2029, including 1,486 days of PTA and assuming payment of all maintenance fees;
- U.S. Patent No. 8,420,124, which includes claims directed to a plurality of monodisperse particles and is expected to expire on August 19, 2028, including 1,338 days of PTA and assuming payment of all maintenance fees;
- U.S. Patent No. 9,877,920, which includes claims directed to a plurality of particles and is expected to expire on December 20, 2024, assuming payment of all maintenance fees;
- U.S. Patent No. 8,662,878, which includes claims directed to molds and mold systems and is expected to expire on December 4, 2026, assuming payment of all maintenance fees;
- U.S. Patent Nos. 8,945,441 and 9,662,809, which include claims directed to methods of making laminate molds and are each expected to expire on December 4, 2026, assuming payment of all maintenance fees;
- U.S. Patent No. 7,976,759, which includes claims directed to methods of forming nanoparticles and is expected to expire on October 13, 2028, assuming payment of all maintenance fees;
- U.S. Patent No. 9,545,737, which includes claims directed to methods of forming pharmaceutical particles and is expected to expire on April 22, 2029, including 191 days of PTA and assuming payment of all maintenance fees;
- U.S. Patent No. 8,444,907, which includes claims directed to methods for fabricating a substantially seamless pattern and is expected to expire on June 28, 2031, including 572 days of PTA and assuming payment of all maintenance fees; and
- U.S. Patent No. 9,744,715, which includes claims directed to methods for fabricating a substantially seamless pattern and is expected to expire on December 3, 2029, assuming payment of all maintenance fees.

As of April 30, 2018, we were sole owner of one pending international patent application, PCT/US17/31397, specifically directed to our LIQ865 product candidate. PCT/US17/31397 includes claims directed to particulate compositions comprising an amino amide anesthetic and Poly(lactide-co-glycolide) polymer, formulations comprising such compositions, methods of using such compositions for inducing extended analgesia and methods of forming such compositions. Any patents that may issue PCT/US17/31397 are expected to expire on May 5, 2037, absent any patent term adjustments or extensions and assuming payment of all maintenance fees.

Sales and Marketing

We have retained worldwide commercial rights for our internal product candidates. If our product candidates receive marketing approval, we plan to commercialize them in the United States by building and utilizing our own commercial infrastructure. Outside of the United States, we intend to pursue the regulatory approval of our product candidates in collaboration with others, while leveraging the regional expertise of a commercialization collaborator. Considering our stage of development, we have not yet established a commercial organization or distribution capabilities.

With regard to our lead product candidate, LIQ861, we intend to focus our commercial efforts initially on the U.S. market, which we believe represents the largest market opportunity. In addition, we plan to establish collaborations with established pharmaceutical companies to commercialize our products in foreign markets. Within the United States, we believe that we can effectively commercialize LIQ861, if approved, with an initial specialty sales force of up to 75 representatives. We intend to initially pursue a highly concentrated target market of PAH centers of excellence and frequent prescribers of PAH therapies. Our physician call points within these sites of care will include cardiologists, pulmonologists and their supporting staff. We expect to supplement our sales force with representatives in the medical science, nursing and reimbursement fields to support the proper training and utilization of LIQ861. As part of our commercialization strategy, we plan to educate physician specialists, healthcare practitioners, patients and caregivers of the benefits of LIQ861 and its proper use. We plan to work with national associations, such as the Pulmonary Hypertension Association, and patient advocacy groups to update treatment guidelines to include a new, convenient product with a wide range of dosing.

Competition

The pharmaceutical industry is intensely competitive, subject to rapid and significant technological change and places emphasis on the value of proprietary products. While we believe that our technologies and experience provide us with a competitive advantage, our competitors include organizations such as major multinational pharmaceutical companies, established biotechnology companies, biopharmaceutical companies and generic drug companies. Many of our competitors have greater financial and other resources than we have, such as more commercial resources, larger research and development staffs and more extensive marketing and manufacturing organizations. As a result, these companies may obtain marketing approval more rapidly than we are able and may be more effective in selling and marketing their products. Smaller or early stage companies may also prove to be significant competitors, particularly through collaboration arrangements with large, established companies.

Any product candidates that we successfully develop and commercialize will compete with existing therapies and new therapies that may become available in the future. Our competitors may succeed in developing, acquiring or licensing, on an exclusive basis, technologies and drug products that are more effective or less costly than products that we are currently selling through collaborators or developing or that we may develop, which could render our products obsolete and non-competitive. We expect any products that we develop and commercialize to compete on the basis of, among other things, efficacy, safety, convenience of administration and delivery, price and the availability of reimbursement from government and other third-party payors. We also expect to face competition in our efforts in recruiting and retaining qualified personnel and establishing clinical trial sites, patient enrollment in clinical trials and in identifying appropriate collaborators to help commercialize any approved products in our target commercial markets.

Government Regulation

Government Regulation and Product Approval

Government authorities in the United States at the federal, state and local level and in other countries, extensively regulate, among other things, the research, development, testing, manufacture, (including manufacturing changes), quality control, approval, labeling, packaging, storage, record-keeping, promotion, advertising, distribution, marketing, export and import of products such as those we are developing. The

processes for obtaining regulatory approvals in the United States and in foreign countries, along with subsequent compliance with applicable statutes and regulations, require the expenditure of substantial time and financial resources.

U.S. Drug Development Process

In the United States, the FDA regulates drugs under the United States Federal Food, Drug, and Cosmetic Act, or the FDCA, and the FDA's implementing regulations.

Failure to comply with the applicable U.S. requirements at any time during the product development process, approval process or after approval may subject an applicant to administrative or judicial sanctions. These sanctions could include the FDA's refusal to approve pending applications, withdrawal of an approval, a clinical hold, untitled or warning letters, product recalls, product seizures, total or partial suspension of production or distribution, injunctions, fines, refusals of government contracts, restitution, disgorgement or civil or criminal penalties. The process required by the FDA before a drug may be marketed in the United States generally involves the following:

- § completion of preclinical laboratory tests, animal studies and formulation studies according to Good Laboratory Practices regulations;
- § submission to the FDA of an IND, which must become effective before human clinical studies may begin;
- § approval by an independent institutional review board, or IRB, at each clinical site before each trial may be initiated;
- § performance of adequate and well-controlled human clinical studies according to Good Clinical Practice, or GCP, regulations, to establish the safety and efficacy of the proposed drug for its intended use;
- § preparation and submission to the FDA of an NDA, containing the results of product development, preclinical studies and clinical trials, along with descriptions of the manufacturing process, analytical tests conducted on the drug product, proposed labeling and other relevant information, to request approval to market the drug product;
- § satisfactory completion of an FDA inspection of the manufacturing facility or facilities at which the drug product, or components thereof, are produced to assess compliance with cGMP to assure that the facilities, methods and controls are adequate to preserve the drug's identity, strength, quality and purity;
- § satisfactory completion of FDA audits of clinical trial sites to assure compliance with GCPs and the integrity of clinical data;
- § FDA review and approval of the NDA;
- § payment of fees, including annual program fees for each drug product on the market; and
- § ongoing compliance with any post-approval requirements, including risk evaluation and mitigation strategy, or REMS, and post-approval studies required by the FDA.

The testing and approval process requires substantial time, effort and financial resources, and we cannot be certain that any approvals for our product candidates will be granted on a timely basis, if at all.

Once a pharmaceutical product candidate is identified for development, it enters the preclinical testing stage. Preclinical tests include laboratory evaluations of product chemistry, toxicity, formulation and stability, as well as animal studies. When a sponsor wants to proceed to test the product candidate in humans, it must submit an IND in order to conduct clinical trials.

An IND sponsor must submit the results of the preclinical tests, together with manufacturing information, analytical data and any available clinical data or literature, to the FDA as part of the IND. The sponsor must also include a protocol detailing, among other things, the objectives of the initial clinical study, the parameters to be used in monitoring safety and the effectiveness criteria to be evaluated if the initial clinical study lends itself to an efficacy evaluation. Some preclinical testing may continue even after the

IND is submitted. The IND automatically becomes effective 30 days after receipt by the FDA, unless the FDA raises concerns or questions related to a proposed clinical study and places the study on a clinical hold within that 30-day time period. In such a case, the IND sponsor and the FDA must resolve any outstanding concerns before the clinical study can begin. Clinical holds also may be imposed by the FDA at any time before or during clinical studies due to safety concerns or non-compliance, and may be imposed on all product candidates within a certain pharmaceutical class. The FDA also can impose partial clinical holds, for example, prohibiting the initiation of clinical studies of a certain duration or for a certain dose.

All clinical studies must be conducted under the supervision of one or more qualified investigators in accordance with GCP regulations. These regulations include the requirement that all research subjects provide informed consent in writing before their participation in any clinical study. Further, an IRB must review and approve the plan for any clinical study before it commences at any institution, and the IRB must conduct continuing review and reapprove the study at least annually. An IRB considers, among other things, whether the risks to individuals participating in the clinical study are minimized and are reasonable in relation to anticipated benefits. The IRB also approves the information regarding the clinical study and the consent form that must be provided to each clinical study subject or his or her legal representative and must monitor the clinical study until completed.

Each new clinical protocol and any amendments to the protocol must be submitted for FDA review, and to the IRBs for approval. Protocols detail, among other things, the objectives of the clinical study, dosing procedures, subject selection and exclusion criteria and the parameters to be used to monitor subject safety.

Information about certain clinical trials must be submitted within specific timeframes to the National Institutes of Health, or NIH, for public dissemination on their ClinicalTrials.gov website.

Human clinical studies are typically conducted in three sequential phases that may overlap or be combined:

- *Phase 1.* The product is initially introduced into a small number of healthy human subjects or patients and tested for safety, dosage tolerance, absorption, metabolism, distribution and excretion and, if possible, to gain early evidence on effectiveness. In the case of some products for severe or life-threatening diseases, especially when the product is suspected or known to be unavoidably toxic, the initial human testing may be conducted in patients.

- *Phase 2.* Involves clinical studies in a limited patient population to identify possible adverse effects and safety risks, to preliminarily evaluate the efficacy of the product for specific targeted diseases and to determine dosage tolerance and optimal dosage and schedule.

- *Phase 3.* Clinical studies are undertaken to further evaluate dosage, clinical efficacy and safety in an expanded patient population at geographically dispersed clinical study sites. These clinical studies are intended to establish the overall risk/benefit relationship of the product and provide an adequate basis for product labeling.

Progress reports detailing the results of the clinical studies must be submitted at least annually to the FDA and safety reports must be submitted to the FDA and the investigators for serious and unexpected suspected adverse events. Phase 1, Phase 2 and Phase 3 testing may not be completed successfully within any specified period, if at all. The FDA or the sponsor may suspend or terminate a clinical study at any time on various grounds, including a finding that the research subjects or patients are being exposed to an unacceptable health risk. Similarly, an IRB can suspend or terminate approval of a clinical study at its institution if the clinical study is not being conducted in accordance with the IRB's requirements or if the drug has been associated with unexpected serious harm to patients.

Concurrent with clinical studies, companies usually complete additional animal studies and must also develop additional information about the chemistry and physical characteristics of the product and finalize a process for manufacturing the product in commercial quantities in accordance with cGMP requirements. The manufacturing process must be capable of consistently producing quality batches of the product

candidate and, among other things, the manufacturer must develop methods for testing the identity, strength, quality and purity of the final product. Additionally, appropriate packaging must be selected and tested and stability studies must be conducted to demonstrate that the product candidate does not undergo unacceptable deterioration over its shelf life.

U.S. Review and Approval Processes

Assuming successful completion of the required clinical testing, the results of product development, preclinical studies and clinical studies, along with descriptions of the manufacturing process, analytical tests conducted on the drug, proposed labeling and other relevant information, are submitted to the FDA as part of an NDA for a new drug, requesting approval to market the product.

The submission of an NDA is subject to the payment of a substantial application user fee although a waiver of such fee may be obtained under certain limited circumstances. For example, the agency will waive the application fee for the first human drug application that a small business or its affiliate submits for review. The sponsor of an approved NDA is also subject to annual program user fees.

In addition, under the Pediatric Research Equity Act of 2003, or PREA, an NDA application (or a supplement to an application) for a new active ingredient, new indication, new dosage form, new dosing regimen or new route of administration must contain data that are adequate to assess the safety and effectiveness of the drug for the claimed indications in all relevant pediatric subpopulations, and to support dosing and administration for each pediatric subpopulation for which the product is safe and effective, unless the applicant has obtained a waiver or deferral.

A sponsor who is planning to submit a marketing application for a drug product that includes a new active ingredient, new indication, new dosage form, new dosing regimen or new route of administration must submit an initial Pediatric Study Plan, or PSP, within 60 days of an End-of-Phase 2 meeting or as may be agreed between the sponsor and the FDA. The initial PSP must include an outline of the pediatric study or studies that the sponsor plans to conduct, including study objectives and design, age groups, relevant endpoints and statistical approach, or a justification for not including such detailed information, and any request for a deferral of pediatric assessments or a full or partial waiver of the requirement to provide data from pediatric studies along with supporting information. The FDA may, on its own initiative or at the request of the applicant, grant deferrals for submission of data or full or partial waivers. The FDA and the sponsor must reach agreement on the PSP. A sponsor can submit amendments to an agreed-upon initial PSP at any time if changes to the pediatric plan need to be considered based on data collected from preclinical studies, early phase clinical studies or other clinical development program.

The FDA also may require submission of a REMS to mitigate any identified or suspected serious risks. The REMS could include medication guides, physician communication plans, assessment plans and elements to assure safe use, such as restricted distribution methods, patient registries or other risk minimization tools.

The FDA reviews all NDAs submitted to ensure that they are sufficiently complete for substantive review before it accepts them for filing. The FDA may request additional information rather than accept an application for filing. In this event, the application must be re-submitted with the additional information. The re-submitted application also is subject to review before the FDA accepts it for filing. Once the submission is accepted for filing, the FDA begins an in-depth substantive review.

The FDA reviews an NDA to determine, among other things, whether a product is safe and effective for its intended use and whether its manufacturing is cGMP-compliant.

The FDA may approve an NDA only if the methods used in, and the facilities and controls used for, the manufacture processing, packing and testing of the product are adequate to ensure and preserve its identity, strength, quality and purity.

Before approving an NDA, the FDA often will inspect the facility or facilities where the product is or will be manufactured.

The FDA may refer the NDA to an advisory committee for review, evaluation and recommendation as to whether the application should be approved and under what conditions. An advisory committee is a panel of experts, including clinicians and other scientific experts, who provide advice and recommendations when requested by the FDA. The FDA is not bound by the recommendation of an advisory committee, but it considers such recommendations when making decisions.

Additionally, before approving an NDA, the FDA will typically inspect one or more clinical sites to assure clinical data supporting the submission were developed in compliance with GCP.

The approval process is lengthy and difficult and the FDA may refuse to approve an NDA if the applicable regulatory criteria are not satisfied, or may require additional clinical data or other data and information. Even if such data and information are submitted, the FDA may ultimately decide that the NDA does not satisfy the criteria for approval. Data obtained from clinical studies are not always conclusive and the FDA may interpret data differently than an applicant interprets the same data.

After the FDA's evaluation of an application, the FDA may issue an approval letter or a complete response letter to indicate that the review cycle is complete and that the application is not ready for approval. A complete response letter generally contains a statement of specific conditions that must be met to secure final approval of the application and may require additional clinical or preclinical testing for the FDA to reconsider the application. The deficiencies identified may be minor, for example, requiring labeling changes, or major, for example, requiring additional clinical studies. Additionally, the complete response letter may include recommended actions that the applicant might take to place the application in a condition for approval. If a complete response letter is issued, the applicant may either resubmit the application, addressing all of the deficiencies identified in the letter, or withdraw the application or request an opportunity for a hearing.

Even with submission of additional information, the FDA ultimately may decide that the application does not satisfy the regulatory criteria for approval. If and when those conditions have been met to the FDA's satisfaction, the FDA will typically issue an approval letter. An approval letter authorizes commercial marketing of the drug with specific prescribing information for specific indications.

If a product receives regulatory approval, the approval may be significantly limited to specific diseases and dosages or the indications for use may otherwise be limited, which could restrict the commercial value of the product. Further, the FDA may require that certain contraindications, warnings or precautions be included in the product labeling. In addition, the FDA may require post-approval studies, including Phase 4 clinical studies, to further assess safety and effectiveness after approval and may require testing and surveillance programs to monitor the safety of approved products that have been commercialized. After approval, some types of changes to the approved product, such as adding new indications, manufacturing changes and additional labeling claims, are subject to further testing requirements and FDA review and approval.

New Drug Applications

Most drug products obtain FDA marketing approval pursuant to an NDA (described above) for innovator products, or an abbreviated new drug application, or ANDA, for generic products. Relevant to ANDAs, the Hatch-Waxman Act amendments to the FDCA established a statutory procedure for submission and FDA review and approval of ANDAs for generic versions of branded drugs previously approved by the FDA (such previously approved drugs are also referred to as listed drugs). Because the safety and efficacy of listed drugs have already been established by the brand company (sometimes referred to as the innovator), the FDA does not require a demonstration of safety and efficacy of generic products. However, a generic manufacturer is typically required to conduct bioequivalence studies of its test product against the listed drug. The bioequivalence studies for orally administered, systemically available drug products assess the rate and extent to which the active pharmaceutical ingredient is absorbed into the bloodstream from the drug product and becomes available at the site of action. Bioequivalence is established when there is an absence of a significant difference in the rate and extent for absorption of the generic product and the

listed drug. For some drugs, including locally acting drugs such as topical anti-fungals, other means of demonstrating bioequivalence may be required by the FDA, especially where rate and/or extent of absorption are difficult or impossible to measure. In addition to the bioequivalence data, an ANDA must contain patent certifications and chemistry, manufacturing, labeling and stability data.

A third alternative is a special type of NDA, commonly referred to as a 505(b)(2) NDA, enables the applicant to rely, in part, on the FDA's findings of safety and efficacy of an existing product, or published literature, in support of its application. 505(b)(2) NDAs often provide an alternate path to FDA approval for new or improved formulations or new uses of previously approved products. Section 505(b)(2) permits the filing of an NDA where at least some of the information required for approval comes from studies not conducted by or for the applicant and for which the applicant has not obtained a right of reference. The applicant may rely upon the FDA's findings with respect to certain preclinical or clinical studies conducted for an approved product. The FDA may also require companies to perform additional studies or measurements to support the change from the approved product. The FDA may then approve the new product candidate for all or some of the label indications for which the referenced product has been approved, as well as for any new indication sought by the 505(b)(2) applicant.

In seeking approval for a drug through an NDA, including a 505(b)(2) NDA, applicants are required to list with the FDA certain patents of the applicant or that are held by third parties whose claims cover the applicant's product. Upon approval of an NDA, each of the patents listed in the application for the drug is then published in the Orange Book. Any subsequent applicant who files an ANDA seeking approval of a generic equivalent version of a drug listed in the Orange Book or a 505(b)(2) NDA referencing a drug listed in the Orange Book must make one of the following certifications to the FDA concerning patents: (1) the patent information concerning the reference listed drug product has not been submitted to the FDA; (2) any such patent that was filed has expired; (3) the date on which such patent will expire; or (4) such patent is invalid or will not be infringed upon by the manufacture, use or sale of the drug product for which the application is submitted. This last certification is known as a paragraph IV certification. A notice of the paragraph IV certification must be provided to each owner of the patent that is the subject of the certification and to the holder of the approved NDA to which the ANDA or 505(b)(2) application refers. The applicant may also elect to submit a "section viii" statement certifying that its proposed label does not contain (or carves out) any language regarding the patented method-of-use rather than certify to a listed method-of-use patent.

If the reference NDA holder or patent owners assert a patent challenge directed to one of the Orange Book listed patents within 45 days of the receipt of the paragraph IV certification notice, the FDA is prohibited from approving the application until the earlier of 30 months from the receipt of the paragraph IV certification expiration of the patent, settlement of the lawsuit or a decision in the infringement case that is favorable to the applicant. The ANDA or 505(b)(2) application also will not be approved until any applicable non-patent exclusivity listed in the Orange Book for the branded reference drug has expired as described in further detail below. Thus approval of a 505(b)(2) NDA or ANDA can be stalled until all the listed patents claiming the referenced product have expired, until any non-patent exclusivity, such as exclusivity for obtaining approval of a new chemical entity, listed in the Orange Book for the referenced product has expired, and, in the case of a Paragraph IV certification and subsequent patent infringement suit, until the earlier of 30 months, settlement of the lawsuit or a decision in the infringement case that is favorable to the ANDA or 505(b)(2) applicant.

Combination Products

Medical products containing a combination of new drugs, biological products, or medical devices are regulated as "combination products" in the United States. A combination product generally is defined as a product comprised of components from two or more regulatory categories, such as drug/device, device/biologic or drug/biologic. The term combination product includes: (i) a product comprised of two or more regulated components (i.e., drug/device, biologic/device, drug/biologic or drug/device/biologic, that are physically, chemically or otherwise combined or mixed and produced as a single entity); (ii) two or more

separate products packaged together in a single package or as a unit and comprised of drug and device products, device and biological products or biological and drug products; (iii) a drug, device or biological product packaged separately that according to its investigational plan or proposed labeling is intended for use only with an approved individually specified drug, device or biological product where both are required to achieve the intended use, indication or effect and where upon approval of the proposed product the labeling of the approved product would need to be changed, such as to reflect a change in intended use, dosage form, strength, route of administration, or significant change in dose; or (iv) any investigational drug, device or biological product packaged separately that according to its proposed labeling is for use only with another individually specified investigational drug, device, or biological product where both are required to achieve the intended use, indication or effect.

Each constituent part of a combination product is subject to the requirements established by the FDA for that type of constituent part, whether a new drug, biologic or device. In order to facilitate pre-market review of combination products, the FDA designates one of its centers to have primary jurisdiction for the pre-market review and regulation of the overall product based upon a determination by FDA of the primary mode of action of the combination product, and typically one application, such as for a drug/device combination product assigned to the FDA's Center for Drug Evaluation and Research, or CDER, an NDA, will be made.

A device with the primary purpose of delivering or aiding in the delivery of a drug and distributed containing a drug (i.e., a "prefilled delivery system") is typically evaluated by CDER using drug authorities and device authorities, as necessary.

A device with the primary purpose of delivering or aiding in the delivery of a drug and that is distributed without the drug (i.e., unfilled) is typically evaluated by the FDA's Center for Devices and Radiological Health and CDER, respectively, unless the intended use of the two products, through labeling, creates a combination product.

The FDA has indicated that dry powder inhalers, such as our lead product candidate, LIQ861, are drug/device combination products.

Post-Approval Requirements

Drugs manufactured or distributed pursuant to FDA approvals are subject to extensive and continuing regulation by the FDA, including, among other things, requirements relating to recordkeeping (including certain electronic record and signature requirements), periodic reporting, product sampling and distribution, advertising and promotion and reporting of certain adverse experiences, deviations and other problems with the product. After approval, most changes to the approved product, such as adding new indications or other labeling claims are subject to prior FDA review and approval. There also are continuing, annual user fee requirements for any marketed products and the establishments at which such products are manufactured, as well as new application fees for supplemental applications with clinical data.

The FDA strictly regulates labeling, advertising, promotion and other types of information on products that are placed on the market. Products may be promoted only for the approved indications and in accordance with the provisions of the approved label. Further, manufacturers must continue to comply with cGMP requirements, which are extensive and require considerable time, resources and ongoing investment to ensure compliance. In addition, changes to the manufacturing process generally require prior FDA approval before being implemented and other types of changes to the approved product, such as adding new indications and additional labeling claims, are also subject to further FDA review and approval.

Manufacturers and certain other entities involved in the manufacturing and distribution of approved products are required to register their establishments with the FDA and certain state agencies, and are subject to periodic unannounced inspections by the FDA and certain state agencies for compliance with cGMP and other laws. The cGMP requirements apply to all stages of the manufacturing process, including the production, processing, sterilization, packaging, labeling, storage and shipment of the product.

Manufacturers must establish validated systems to ensure that products meet specifications and regulatory standards, and test each product batch or lot prior to its release. Combination products are subject to FDA regulation to ensure the quality of both the constituent parts and the finished product.

Changes to the manufacturing process are strictly regulated and often require prior FDA approval before being implemented. FDA regulations also require investigation and correction of any deviations from cGMP and impose reporting and documentation requirements upon the sponsor and any third-party manufacturers that the sponsor may decide to use. Accordingly, manufacturers must continue to expend time, money and effort in the area of production and quality control to maintain cGMP compliance.

The FDA may impose a number of post-approval requirements as a condition of approval of an application. For example, the FDA may require post-marketing testing, including Phase 4 clinical trials, and surveillance to further assess and monitor the product's safety and effectiveness after commercialization.

The FDA may withdraw a product approval if compliance with regulatory requirements is not maintained or if problems occur after the product reaches the market. Later discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, problems with manufacturing processes, or failure to comply with regulatory requirements, may result in restrictions on the product or even complete withdrawal of the product from the market.

Potential implications include required revisions to the approved labeling to add new safety information; imposition of post-market studies or clinical trials to assess new safety risks; or imposition of distribution or other restrictions under a REMS program. Other potential consequences include, among other things:

- restrictions on the marketing or manufacturing of the product, complete withdrawal of the product from the market or product recalls;
- warning letters or holds on post-approval clinical trials;
- refusal of the FDA to approve pending NDAs or supplements to approved NDAs, or suspension or revocation of product license approvals;
- product seizure or detention, or refusal to permit the import or export of products; or
- injunctions or the imposition of civil or criminal penalties.

The FDA strictly regulates marketing, labeling, advertising and promotion of products that are placed on the market. Drugs may be promoted only for the approved indications and in accordance with the provisions of the approved label. The FDA and other agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses, and a company that is found to have improperly promoted off-label uses may be subject to significant liability.

In addition, the distribution of prescription drugs is subject to the Prescription Drug Marketing Act, or PDMA, which regulates the distribution of the products and product samples at the federal level, and sets minimum standards for the registration and regulation of distributors by the states. Both the PDMA and state laws limit the distribution of prescription pharmaceutical product samples and impose requirements to ensure accountability in distribution.

From time to time, legislation is drafted, introduced and passed in Congress that could significantly change the statutory provisions governing the approval, manufacturing and marketing of products regulated by the FDA. In addition to new legislation, FDA regulations, guidance and policies are often revised or reinterpreted by the agency in ways that may significantly affect our business and our product candidates. It is impossible to predict whether further legislative or FDA regulation or policy changes will be enacted or implemented and what the impact of such changes, if any, may be.

Patent Term Restoration

Depending upon the timing, duration and specifics of FDA approval of the use of our product candidates, some of our U.S. patents may be eligible for limited PTE under the Hatch-Waxman Act. The Hatch-Waxman Act permits a patent restoration term of up to five years as compensation for patent term effectively lost

during product development and the FDA regulatory review process. However, patent term restoration cannot extend the remaining term of a patent beyond a total of 14 years from the product's approval date. The patent term restoration period is generally one-half the time between the effective date of an IND and the submission date of an NDA plus the time between the submission date of an NDA and the approval of that application, except that the review period is reduced by any time during which the applicant failed to exercise due diligence. Only one patent applicable to an approved drug is eligible for the extension. Extensions are not granted as a matter of right and the extension must be applied for prior to expiration of the patent and within a sixty day period from the date the product is first approved for commercial marketing. The USPTO, in consultation with the FDA, reviews and approves the application for any PTE or restoration. In the future, we may apply for PTEs, defined as the length of the regulatory review of products covered by our granted patents, for some of our currently owned or licensed applications and patents to add patent life beyond their current expiration dates. Such extensions will depend on the length of the regulatory review; however, there can be no assurance that any such extension will be granted to us.

Marketing Exclusivity

Market exclusivity provisions under the FDCA can also delay the submission or the approval of certain applications. The specific scope varies, but fundamentally the FDCA provides a five-year period of non-patent marketing exclusivity within the United States to the first applicant to gain approval of an NDA for a new chemical entity. A drug is a new chemical entity if the FDA has not previously approved any other new drug containing the same active moiety, which is the molecule or ion responsible for the action of the drug substance. During the exclusivity period, the FDA may not accept for review an ANDA or a 505(b)(2) NDA submitted by another company for another version of such drug where the applicant does not own or have a legal right of reference to all the data required for approval. However, an application may be submitted after four years if it contains a certification of patent invalidity or non-infringement. The FDCA also provides three years of marketing exclusivity for an NDA, 505(b)(2) NDA or supplement to an existing NDA if new clinical investigations, other than bioavailability studies, that were conducted or sponsored by the applicant are deemed by the FDA to be essential to the approval of the application, for example, for new indications, dosages or strengths of an existing drug. This three-year exclusivity covers only the conditions of use associated with the new clinical investigations and does not prohibit the FDA from approving applications for drugs containing the original active agent. Five-year and three-year exclusivity will not delay the submission or approval of a full NDA. However, an applicant submitting a full NDA would be required to conduct or obtain a right of reference to all of the preclinical studies and adequate and well-controlled clinical studies necessary to demonstrate safety and effectiveness.

Pediatric exclusivity is another type of exclusivity in the United States. Pediatric exclusivity, if granted, provides an additional six months to the term of any existing regulatory exclusivity, including the non-patent exclusivity periods described above. This six-month exclusivity may be granted based on the voluntary completion of a pediatric clinical study in accordance with an FDA-issued "Written Request" for such a clinical study.

Pharmaceutical Coverage, Pricing and Reimbursement

In the United States, sales of any products for which we may receive regulatory approval for commercial sale will depend in part on the availability of coverage and reimbursement from third-party payors. Third-party payors include government authorities, managed care providers, private health insurers and other organizations.

Significant uncertainty exists as to the coverage and reimbursement status of any products for which we may obtain regulatory approval. Some of the additional requirements and restrictions on coverage and reimbursement levels imposed by third-party payors influence the purchase of healthcare services and products. Third-party payors may limit coverage to specific drugs on an approved list, or formulary, which might not include all of the FDA-approved drugs for a particular indication, or place drugs at certain formulary levels that result in lower reimbursement levels. Moreover, a payor's decision to provide coverage for a drug product does not imply that an adequate reimbursement rate will be approved. Adequate third-

party reimbursement may not be available to enable us to maintain price levels sufficient to realize an appropriate return on our investment in product development. Further, one payor's determination to provide coverage does not assure that other payors will also provide coverage and reimbursement for the product, and the level of coverage and reimbursement may differ significantly from payor to payor as there is no uniform policy of coverage and reimbursement for drug products among third-party payors.

Reimbursement may also impact the demand for drug products that obtain marketing approval. If coverage for a drug product is obtained by a third-party payor, the resulting reimbursement payment rates may not be adequate or may require co-payments that patients find unacceptably high. Patients who are prescribed medications for the treatment of their conditions, and their prescribing physicians, generally rely on third-party payors to reimburse all or part of the costs associated with their prescription drugs. Prescribing physicians are unlikely to use or prescribe drug products unless coverage is provided and reimbursement is adequate to cover all or a significant portion of the cost of those drug products. If reimbursement is not available, or is available only to limited levels, a drug product which has obtained marketing approval may not be successfully commercialized.

Third-party payors are increasingly challenging the price and examining the medical necessity and cost-effectiveness of medical products and services, in addition to their safety and efficacy. In order to obtain and maintain coverage and reimbursement for any product that might be approved for sale, we may need to conduct expensive pharmacoeconomic studies in order to demonstrate the medical necessity and cost-effectiveness of any products, in addition to the costs required to obtain regulatory approvals. Our product candidates may not be considered medically necessary or cost-effective. If third-party payors do not consider a product to be cost-effective compared to other available therapies, they may not cover the product after approval as a benefit under their plans or, if they do, the level of payment may not be sufficient to allow a company to sell its products at a profit.

The U.S. government and state legislatures have shown significant interest in implementing cost containment programs to limit the growth of government-paid healthcare costs, including price controls, restrictions on reimbursement and coverage and requirements for substitution of generic products for branded prescription drugs. Adoption of government controls and measures, and tightening of restrictive policies in jurisdictions with existing controls and measures, could exclude or limit our drugs and product candidates from coverage and limit payments for pharmaceuticals.

In addition, we expect that the increased emphasis on managed care and cost containment measures in the United States by third-party payors and government authorities to continue and will place pressure on pharmaceutical pricing and coverage. Coverage policies and third-party reimbursement rates may change at any time. Even if favorable coverage and reimbursement status is attained for one or more products for which we receive regulatory approval, less favorable coverage policies and reimbursement rates may be implemented in the future.

Other Healthcare Laws and Compliance Requirements

Healthcare providers, physicians and third-party payors often play a primary role in the recommendation and prescription of any currently marketed products and product candidates for which we may obtain marketing approval. Our current and future arrangements with healthcare providers, physicians, third-party payors and customers, and our sales, marketing and educational activities, may expose us to broadly applicable fraud and abuse and other healthcare laws and regulations (at the federal and state level) that may constrain our business or financial arrangements and relationships through which we market, sell and distribute our products for which we obtain marketing approval.

In addition, we may be subject to transparency laws and patient privacy regulation by both the federal government and the states in which we conduct our business. The laws that may affect our ability to operate include the following:

- The federal Anti-Kickback Statute, which prohibits, among other things, persons and entities including pharmaceutical manufacturers from knowingly and willfully soliciting, receiving, offering or paying remuneration, directly or indirectly, overtly or covertly, in cash or in kind, to induce or reward, or in return for, either the referral of an individual for, or the purchase, lease, order or recommendation of, an item or service reimbursable, in whole or in part, under a federal healthcare program, such as the Medicare and Medicaid programs. This statute has been interpreted broadly to apply to, among other things, arrangements between pharmaceutical manufacturers on the one hand and prescribers, purchasers and formulary managers on the other hand. The term "remuneration" expressly includes kickbacks, bribes or rebates and also has been broadly interpreted to include anything of value, including, for example, gifts, discounts, waivers of payment, ownership interest and providing anything at less than its fair market value. There are a number of statutory exceptions and regulatory safe harbors protecting certain common activities from prosecution or other regulatory sanctions, however, the exceptions and safe harbors are drawn narrowly, and practices that do not fit squarely within an exception or safe harbor may be subject to scrutiny. The failure to meet all of the requirements of a particular applicable statutory exception or regulatory safe harbor does not make the conduct per se illegal under the federal Anti-Kickback Statute. Instead, the legality of the arrangement will be evaluated on a case-by-case basis based on a cumulative review of all of its facts and circumstances. Our practices may not meet all of the criteria for safe harbor protection from federal Anti-Kickback Statute liability in all cases. A person or entity does not need to have actual knowledge of the federal Anti-Kickback Statute or specific intent to violate it to have committed a violation. In addition, the government may assert that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the False Claims Act.

- The federal civil and criminal false claims laws and civil monetary penalty laws, including the False Claims Act, which prohibits individuals or entities from, among other things, knowingly presenting, or causing to be presented, claims for payment to, or approval by, the federal government that are false, fictitious or fraudulent or knowingly making, using or causing to be made or used, a false record or statement material to a false or fraudulent claim to avoid, decrease or conceal an obligation to pay money to the federal government. As a result of a modification made by the Fraud Enforcement and Recovery Act of 2009, a claim includes "any request or demand" for money or property presented to the federal government. Although we do not submit claims directly to payors, manufacturers can be held liable under these laws if they are deemed to "cause" the submission of false or fraudulent claims by, for example, providing inaccurate billing or coding information to customers, promoting a product off-label, marketing products of sub-standard quality, or, as noted above, paying a kickback that results in a claim for items or services. In addition, our activities relating to the reporting of wholesaler or estimated retail prices for our products, the reporting of prices used to calculate Medicaid rebate information and other information affecting federal, state and third-party reimbursement for our products, and the sale and marketing of our products, are subject to scrutiny under this law. For example, several pharmaceutical and other healthcare companies have faced enforcement actions under these laws for allegedly inflating drug prices they report to pricing services, which in turn were used by the government to set Medicare and Medicaid reimbursement rates, and for allegedly providing free product to customers with the expectation that the customers would bill federal programs for the product. The False Claims Act also permits a private individual acting as a "whistleblower" to bring actions on behalf of the federal government alleging violations of the False Claims Act and to share in any monetary recovery. In addition, federal Anti-Kickback Statute violations and certain marketing practices, including off-label promotion, may also implicate the False Claims Act. Although the False Claims Act is a civil statute, conduct that results in a False Claims Act violation may also implicate various federal criminal statutes.

- The federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, which imposes criminal and civil liability for knowingly and willfully executing, or attempting to execute, a scheme to defraud or to obtain, by means of false or fraudulent pretenses, representations or promises, any money or property owned by, or under the control or custody of, any healthcare benefit program, including private third-party payors and knowingly and willfully falsifying, concealing or covering up by trick, scheme or device, a material fact or making any materially false, fictitious or fraudulent statement in connection with the delivery of or payment for healthcare benefits, items or services. Similar to the federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it to have committed a violation.

- HIPAA, as amended by as amended by the Health Information Technology for Economic and Clinical Health Act of 2009, or HITECH, and their respective implementing regulations, including the Final Omnibus Rule published on January 25, 2013, impose, among other things, obligations, including mandatory contractual terms, with respect to safeguarding the privacy, security and transmission of individually identifiable health information held by certain healthcare providers, health plans and healthcare clearinghouses, known as covered entities, and business associates. Among other things, HITECH made certain aspects of HIPAA's rules (notably the Security Rule) directly applicable to business associates — independent contractors or agents of covered entities that receive or obtain individually identifiable health information in connection with providing a service on behalf of a covered entity. HITECH also created four new tiers of civil monetary penalties, amended HIPAA to make civil and criminal penalties directly applicable to business associates, and gave state attorneys general new authority to file civil actions for damages or injunctions in federal court to enforce the federal HIPAA laws and seek attorney's fees and costs associated with pursuing federal civil actions. The Department of Health and Human Services Office of Civil Rights, or the OCR, has increased its focus on compliance and continues to train state attorneys general for enforcement purposes. The OCR has recently increased both its efforts to audit HIPAA compliance and its level of enforcement, with one recent penalty exceeding $5 million.

- The federal physician payment transparency requirements, sometimes referred to as the "Physician Payments Sunshine Act," created under the U.S. Patient Protection and Affordable Care Act of 2010, as amended, or the ACA, and its implementing regulations, which requires applicable manufacturers of covered drugs, devices, biologics and medical supplies for which payment is available under Medicare, Medicaid or the State Children's Health Insurance Program (with certain exceptions) to annually report to the United States Department of Health and Human Services, information related to certain payments or other transfers of value made or distributed to physicians (defined to include doctors, dentists, optometrists, podiatrists and chiropractors) and teaching hospitals, or to entities or individuals at the request of, or designated on behalf of, the physicians and teaching hospitals, as well as ownership and investment interests held by physicians and their immediate family members.

- According to the U.S. Federal Trade Commission, or the FTC, failing to take appropriate steps to keep consumers' personal information secure constitutes unfair acts or practices in or affecting commerce in violation of Section 5(a) of the Federal Trade Commission Act, or the FTCA, 15 U.S.C § 45(a). The FTC expects a company's data security measures to be reasonable and appropriate in light of the sensitivity and volume of consumer information it holds, the size and complexity of its business, and the cost of available tools to improve security and reduce vulnerabilities. Medical data is considered sensitive data that merits stronger safeguards. The FTC's guidance for appropriately securing consumers' personal information is similar to what is required by the HIPAA Security Rule.

- Analogous state laws and regulations, such as state anti-kickback and false claims laws, which may apply to items or services reimbursed by any third-party payor, including commercial insurers, some state laws require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government in addition to requiring drug manufacturers to report pricing and marketing information, including, among other things, information related to payments to physicians and other healthcare providers or

marketing expenditures, state and local laws that require the registration of pharmaceutical sales representatives, and state laws governing the privacy and security of health information and the use of prescriber-identifiable data in certain circumstances, many of which differ from each other in significant ways and may not have the same effect, thus complicating compliance efforts.

Because of the breadth of these laws and the narrowness of the statutory exceptions and regulatory safe harbors available under such laws, it is possible that certain business activities could be subject to challenge under one or more of such laws. The scope and enforcement of each of these laws is uncertain and subject to rapid change in the current environment of healthcare reform, especially in light of the lack of applicable precedent and regulations. Federal and state enforcement bodies have recently increased their scrutiny of interactions between healthcare companies and healthcare providers, which has led to a number of investigations, prosecutions, convictions and settlements in the healthcare industry. Ensuring that business arrangements with third parties comply with applicable healthcare laws, as well as responding to possible investigations by government authorities, can be time- and resource-consuming and can divert management's attention from the business.

If our operations are found to be in violation of any of the health regulatory laws described above or any other laws that apply to us, we may be subject to penalties, including, but not limited to, criminal, civil and administrative penalties, damages, fines, disgorgement, individual imprisonment, possible exclusion from participation in government healthcare programs, injunctions, private qui tam actions brought by individual whistleblowers in the name of the government and the curtailment or restructuring of our operations, as well as additional reporting obligations and oversight if we become subject to a corporate integrity agreement or other agreement to resolve allegations of non-compliance with these laws, any of which could adversely affect our ability to operate our business and our results of operations.

Healthcare Reform

A primary trend in the U.S. healthcare industry and elsewhere is cost containment. There have been a number of federal and state proposals during the last few years regarding the pricing of pharmaceutical and biopharmaceutical products, limiting coverage and reimbursement for drugs and other medical products, government control and other changes to the healthcare system in the United States. By way of example, in March 2010, the ACA as amended was enacted, which includes measures that have or will significantly change the way healthcare is financed by both governmental and private insurers. Among the provisions of the ACA of greatest importance to the pharmaceutical industry are the following:

- The Medicaid Drug Rebate Program requires pharmaceutical manufacturers to enter into and have in effect a national rebate agreement with the Secretary of the Department of Health and Human Services as a condition of Medicare Part B and Medicaid coverage of the manufacturer's outpatient drugs furnished to Medicaid patients. Effective in 2010, the ACA made several changes to the Medicaid Drug Rebate Program, including increasing pharmaceutical manufacturers' rebate liability by raising the minimum basic Medicaid rebate on most branded prescription drugs from 15.1% of average manufacturer price, or AMP, to 23.1% of AMP, establishing new methodologies by which AMP is calculated and rebates owed by manufacturers under the Medicaid Drug Rebate Program are collected for drugs that are inhaled, infused, instilled, implanted or injected, adding a new rebate calculation for "line extensions" (i.e., new formulations, such as extended release formulations) of solid oral dosage forms of branded products, expanding the universe of Medicaid utilization subject to drug rebates to covered drugs dispensed to individuals who are enrolled in Medicaid managed care organizations. and expanding the population potentially eligible for Medicaid drug benefits.

- In order for a pharmaceutical product to receive federal reimbursement under the Medicare Part B and Medicaid programs or to be sold directly to U.S. government agencies, the manufacturer must extend discounts to entities eligible to participate in the 340B drug pricing program. The required 340B discount on a given product is calculated based on the AMP and Medicaid rebate amounts reported by the manufacturer. Effective in 2010, the ACA expanded the types of entities eligible to receive discounted 340B pricing, although, under the current state of the law, with the exception of

children's hospitals, these newly eligible entities will not be eligible to receive discounted 340B pricing on orphan drugs when used for the orphan indication. In addition, as 340B drug pricing is determined based on AMP and Medicaid rebate data, the revisions to the Medicaid rebate formula and AMP definition described above could cause the required 340B discount to increase. Recent proposed guidance from the U.S. Department of Health and Human Services Health Resources and Services Administration, if adopted in its current form, may affect manufacturers' rights and liabilities in conducting audits and resolving disputes under the 340B program.

- Expansion of eligibility criteria for Medicaid programs by, among other things, allowing states to offer Medicaid coverage to additional individuals beginning in April 2010 and by adding new mandatory eligibility categories for certain individuals with income at or below 133.0% of the federal poverty level beginning in 2014, thereby potentially increasing both the volume of sales and manufacturers' Medicaid rebate liability.

- The ACA imposed a requirement on manufacturers of branded drugs to provide a 50% (and 70% commencing on January 1, 2019) discount off the negotiated price of branded drugs dispensed to Medicare Part D patients in the coverage gap (i.e., the donut hole) in order for Part D coverage to be available for the manufacturer's covered Part D drugs.

- The ACA imposed an annual, nondeductible fee on any entity that manufactures or imports certain branded prescription drugs with aggregate branded prescription drug sales over $5 million to certain government healthcare programs or pursuant to coverage under such programs, apportioned among these entities according to their market share in certain government healthcare programs, although this fee would not apply to sales of certain products approved exclusively for orphan indications.

- The ACA implemented the federal physician payment transparency requirements, sometimes referred to as the "Physician Payments Sunshine Act".

- The ACA established a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research. The research conducted by the Patient-Centered Outcomes Research Institute may affect the market for certain pharmaceutical products by influencing decisions relating to coverage and reimbursement rates.

- The ACA established the Center for Medicare and Medicaid Innovation within Centers for Medicare & Medicaid Services, or CMS, to test innovative payment and service delivery models to lower Medicare and Medicaid spending, potentially including prescription drug spending. Funding has been allocated to support the mission of the Center for Medicare and Medicaid Innovation from 2011 to 2019.

- The ACA established a licensure framework for follow-on biologic products.

- The ACA expanded healthcare fraud and abuse laws in the United States, including the False Claims Act and the federal Anti-Kickback Statute, new government investigative powers and enhanced penalties for non-compliance.

- The ACA requires annual reporting of drug samples that manufacturers and distributors provide to physicians.

Some of the provisions of the ACA have yet to be implemented, and there have been judicial and Congressional challenges to certain aspects of the ACA, as well as recent efforts by the Trump administration to repeal or replace certain aspects of the ACA. Since January 2017, President Trump has signed two Executive Orders and other directives designed to delay the implementation of certain provisions of the ACA or otherwise circumvent some of the requirements for health insurance mandated by the ACA. Concurrently, Congress has considered legislation that would repeal or repeal and replace all or part of the ACA. While Congress has not passed comprehensive repeal legislation, two bills affecting the implementation of certain taxes under the ACA have been signed into law. The Tax Cuts and Jobs Act of 2017 includes a provision repealing, effective January 1, 2019, the tax-based shared responsibility payment imposed by the ACA on certain individuals who fail to maintain qualifying health coverage for all or part of a year that is commonly referred to as the "individual mandate". Additionally, on January 22, 2018,

President Trump signed a continuing resolution on appropriations for fiscal year 2018 that delayed the implementation of certain ACA-mandated fees, including the so-called "Cadillac" tax on certain high cost employer-sponsored insurance plans, the annual fee imposed on certain health insurance providers based on market share, and the medical device excise tax on non-exempt medical devices. Further, the Bipartisan Budget Act of 2018, or the BBA, among other things, amends the ACA, effective January 1, 2019, to close the coverage gap in most Medicare drug plans, commonly referred to as the "donut hole".

Other legislative changes have been proposed and adopted in the United States since the ACA was enacted. For example, in August 2011, the Budget Control Act of 2011, among other things, created measures for spending reductions by Congress. A Joint Select Committee on Deficit Reduction, tasked with recommending a targeted deficit reduction of at least $1.2 trillion for the years 2012 through 2021, was unable to reach required goals, thereby triggering the legislation's automatic reduction to several government programs. This includes aggregate reductions of Medicare payments to providers of up to 2% per fiscal year, which went into effect in April 2013 and due to subsequent legislative amendments to the statute, including the BBA, will remain in effect through 2027 unless additional Congressional action is taken. In January 2013, President Obama signed into law the American Taxpayer Relief Act of 2012, which, among other things, further reduced Medicare payments to several providers, including hospitals, imaging centers and cancer treatment centers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years. In addition, recently there has been heightened governmental scrutiny over the manner in which manufacturers set prices for their marketed products.

Further, there has been increasing legislative and enforcement interest in the United States with respect to specialty drug pricing practices. Specifically, there have been several recent U.S. Congressional inquiries and proposed and enacted federal legislation designed to, among other things, bring more transparency to drug pricing, reduce the cost of prescription drugs under Medicare, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for drugs. At the state level, legislatures have increasingly passed legislation and implemented regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing.

There have been, and likely will continue to be, legislative and regulatory proposals at the foreign, federal and state levels directed at broadening the availability of healthcare and containing or lowering the cost of healthcare. Such reforms could have an adverse effect on anticipated revenues from our products and product candidates that we may successfully develop and for which we may obtain regulatory approval and may affect our overall financial condition and ability to develop product candidates.

Foreign Regulation of Drugs

In order to market any product outside of the United States, we will need to comply with numerous and varying regulatory requirements of other countries and jurisdictions regarding development, approval, commercial sales and distribution of our products, and governing, among other things, clinical trials, marketing authorization, commercial sales and distribution of our products, if approved. Whether or not we obtain FDA approval for a product, we must obtain the necessary approvals by the comparable regulatory authorities of foreign countries before we can commence clinical trials or marketing of the product in those countries. The approval process varies between countries and jurisdictions and can involve additional product testing and additional administrative review periods. The time required to obtain approval in other countries and jurisdictions might differ from and be longer than that required to obtain FDA approval. Regulatory approval in one country or jurisdiction does not ensure regulatory approval in another, but a failure or delay in obtaining regulatory approval in one country or jurisdiction may negatively impact the regulatory process in others.

Employees

As of April 30, 2018, we had 63 full-time employees, including six employees in management (including our executive officers), 26 employees in research and development, 15 employees in manufacturing and operations, five employees in regulatory and quality and 11 employees in general and administration. All of our full-time employees are employed in the United States.

Facilities

Our corporate headquarters are located in Morrisville, North Carolina, and consist of 36,834 square feet of space under a lease that expires on October 31, 2026 and includes an option to renew for an additional five years through October 31, 2031. The primary use of this location is general office, laboratory, research and development and light manufacturing. In addition, we also have an additional lease in Morrisville, North Carolina consisting of 4,402 square feet of space which lease expires on October 31, 2022 and includes an option to renew for an additional five years through October 31, 2027. The primary use of this location is general office space and research and development laboratories. We believe that our facilities are adequate for our current needs and for the foreseeable future; however, we will continue to seek additional space as needed to accommodate our growth.

Legal Proceedings

From time to time, we may become involved in legal proceedings or be subject to claims arising in the ordinary course of our business. Regardless of the outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources and other factors. There is no action, suit, proceeding, inquiry or investigation before or by any court, public board, government agency, self-regulatory organization or other body pending or, to the knowledge of our executive officers, threatened against or affecting us, our common stock or any of our officers or directors in their capacities as such, in which an adverse decision could have a materially adverse effect on our financial condition or results of operations.

MANAGEMENT

Executive Officers and Directors

The following table sets forth the name, age as of April 30, 2018 and position of each of our executive officers and directors. The following also includes certain information regarding our directors' and executive officers' individual experience, qualifications, attributes and skills and brief statements of those aspects of our directors' backgrounds that led us to conclude that they are qualified to serve as directors. Unless otherwise stated, the business address for all of our executive officers and members of our Board is c/o Liquidia Technologies, Inc., 419 Davis Drive, Suite 100, Morrisville, North Carolina 27560.

Name	Age	Position
Executive Officers		
Neal Fowler	56	Chief Executive Officer and Director
Kevin Gordon	55	President and Chief Financial Officer
Robert Lippe	53	Chief Operations Officer
Dr. Robert Roscigno	52	Senior Vice President, Product Development
Dr. Benjamin Maynor	43	Senior Vice President, Research and Development
Non-Employee Directors		
Dr. Seth Rudnick[2][3][4]	69	Chairman of the Board and Director
Dr. Stephen Bloch[1][3]	56	Director
Edward Mathers[3]	58	Director
Dr. Isaac Cheng[1]	43	Director
Dr. Ralph Snyderman[2][4]	78	Director
Arthur Kirsch[1]	66	Director
Jason Rushton	48	Director
Raman Singh[2]	47	Director
Key Employees		
Timothy Albury	49	Senior Vice President, Chief Accounting Officer
Jason Adair	46	Vice President, Business Development and Strategy

(1) Member of our Audit Committee.

(2) Member of our Nominating and Corporate Governance Committee effective upon formation of such committee prior to consummation of this offering.

(3) Member of our Compensation Committee.

(4) Member of our Research and Development Committee.

Executive Officers

Neal Fowler has been our Chief Executive Officer and a member of our Board since March 2008. Mr. Fowler also served as a director of Envisia Therapeutics Inc. from November 2013 until November 2017. From June 2006 to March 2008, Mr. Fowler served as president of Centocor, Inc., a subsidiary of Johnson & Johnson, which focused on the development and commercialization of industry-leading biomedicines used to treat chronic inflammatory diseases. From July 2004 to June 2006, Mr. Fowler was the president of Ortho-McNeil Neurologics, Inc. and from October 2001 to July 2004, the vice president of the central nervous system business of Ortho-McNeil-Janssen Pharmaceuticals, Inc. From June 1988 to October 2001, Mr. Fowler held a variety of sales, marketing and business development roles at Eli Lilly and Company in

the pharmaceutical and medical device divisions. Mr. Fowler is currently a director of Aralez Pharmaceuticals, Inc. (Nasdaq: ARLZ). Mr. Fowler graduated from UNC with a Bachelor of Science in Pharmacy and holds a Master of Business Administration from UNC. We believe Mr. Fowler is qualified to serve on our Board due to his extensive and broad range of experience in business and healthcare product development, including previous experience growing companies in the pharmaceutical industry.

Kevin Gordon has been our President and Chief Financial Officer since January 2018. From October 2015 until his retirement in October 2016, Mr. Gordon served as executive vice president and chief operating officer of Quintiles (now named IQVIA Holdings Inc.) (NYSE: IQV), today a global biopharmaceutical services provider. From July 2010 to December 2015, Mr. Gordon served as executive vice president and chief financial officer of Quintiles. Prior to joining Quintiles, Mr. Gordon spent 13 years with Teleflex Incorporated (NYSE: TFX), a health care company, most recently serving as executive vice president and chief financial officer from March 2007 to January 2010. Prior to serving at Teleflex, Mr. Gordon spent 12 years in senior finance positions with Package Machinery Company and KPMG. Mr. Gordon is currently a director and the audit committee chairman of Veracyte, Inc. (Nasdaq: VCYT). Mr. Gordon received his Bachelor of Science in Accounting from the University of Connecticut.

Robert Lippe has been our Chief Operations Officer since June 2015. From February 2014 to June 2015, Mr. Lippe served as executive vice president of operations and chief operations officer at Alexza Pharmaceuticals, Inc. From January 2011 to February 2014, Mr. Lippe worked as the head of global operations at Ironwood Pharmaceuticals, Inc., and from March 2002 to January 2011, he was the head of manufacturing for one of Genentech, Inc.'s Vacaville operating facilities. From May 1992 to May 2002, Mr. Lippe worked at Lawrence Livermore National Laboratory as an assurance and facility manager. Mr. Lippe graduated with a Bachelor of Science in Marine Engineering from the United States Coast Guard Academy. Mr. Lippe holds a Master of Business Administration and Public Health from the University of California, Berkeley.

Dr. Robert Roscigno has been our Senior Vice President, Product Development since December 2017. He served as our Senior Vice President, Research and Development from March 2016 until December 2017 and our Vice President, Research and Development from September 2015 until March 2016. From January 2009 to September 2015, Dr. Roscigno served as the executive vice president, global clinical affairs of GeNO, LLC, a pharmaceutical company in the field of inhaled nitric oxide drug products. From July 2007 to January 2009, Dr. Roscigno provided scientific consulting for various companies in the pharmaceutical industry and also worked as a subject matter expert in PAH. From March 1997 to July 2007, Dr. Roscigno was the president and chief operations officer of Lung Rx, Inc., a subsidiary of United Therapeutics Corporation. Prior to Lung Rx, Inc., Dr. Roscigno served in multiple leadership positions at United Therapeutics Corporation. Dr. Roscigno graduated from Trinity College with a Bachelor of Science in Biology. He also holds a Doctor of Philosophy in Cell and Molecular Biology from Duke University.

Dr. Benjamin Maynor has been our Senior Vice President, Research and Development since January 2016. He served as our Vice President, Research and Development from March 2015 to January 2016. He joined us as a scientist in September 2005 and is a co-inventor of our PRINT technology. Dr. Maynor was seconded by us to Envisia Therapeutics Inc. from January 2013 to March 2015 where he served as Envisia's vice president, research. Dr. Maynor was also our Vice President, Research from January 2012 to January 2013, our Executive Director of Research from November 2011 to January 2012, our Director of Research from January 2010 to November 2011, our Principal Scientist from October 2009 to January 2010 and a Scientist of the Company from September 2005 to October 2009. Prior to joining us, Dr. Maynor was a postdoctoral associate at UNC from May 2004 to September 2005. He was also a scientist at Polestar Technologies, Inc. from September 1996 to June 1999. Dr. Maynor graduated from Harvard University with a Bachelor of Arts in Chemistry. He also holds a Doctor of Philosophy in Chemistry from Duke University. He is also a member of both the American Chemical Society and the American

Association of Pharmaceutical Scientists. Dr. Maynor was honored with the Kathryn C. Hach Award for Entrepreneurial Success in 2014 by the American Chemical Society.

Directors

Dr. Seth Rudnick is the Chairman of our Board and has been a member of our Board since March 2008, a member of our Compensation Committee since its formation in August 2016, a member of our Nominating and Corporate Governance Committee since its formation in , 2018 and a member of our Research and Development Committee since its formation in May 2017. Dr. Rudnick is currently a director of G1 Therapeutics, Inc. (Nasdaq: GTHX) and Aralez Pharmaceuticals, Inc. (Nasdaq: ARLZ). Dr. Rudnick previously served as a partner at Canaan Partners, a global venture capital firm, from January 1998 to December 2013. From January 1991 to January 1998, Dr. Rudnick was the chief executive officer and chairman of CytoTherapeutics, Inc. From July 1986 to January 1991, Dr. Rudnick worked at Ortho Biotech, Inc., a subsidiary of Johnson & Johnson, where he served as vice president, head of research and development. Dr. Rudnick also previously held directorships at Square 1 Bank, LQ3 Pharmaceuticals, Inc. and Spine Wave, Inc. Dr. Rudnick graduated from the University of Pennsylvania with a Bachelor of Arts in History. He also holds a Doctor of Medicine from the University of Virginia and a Diplomate in the Specialty of Internal Medicine from the American Board of Internal Medicine. We believe Dr. Rudnick is qualified to serve on our Board due to his industry experience, experience as a venture capitalist and senior executive and his experience of serving on the board of directors for several public and private pharmaceutical and life sciences companies.

Dr. Stephen Bloch has been a member of our Board since July 2009, a member of our Audit Committee since its formation in August 2016 and the Chairman of our Compensation Committee since its formation in August 2016. Dr. Bloch is currently a director of a number of private life sciences companies and served as a director of Marinus Pharmaceuticals, Inc. (Nasdaq: MRNS) from September 2005 until April 2016. Dr. Bloch has been a general partner at Canaan Partners, a global venture capital firm, since November 2007. From August 2003 to November 2007, Dr. Bloch was a principal at Canaan Partners. From January 1995 to June 2002, Dr. Bloch was the founder and chief executive officer of Radiology Management Sciences, LLC, a specialty medical management company. Dr. Bloch graduated from Dartmouth College with a Bachelor of Arts. Dr. Bloch also holds a Doctor of Medicine from the University of Rochester and a Master of Arts in the History of Science and Public Policy from Harvard University. We believe Dr. Bloch is qualified to serve on our Board due to his financial expertise, experience as a venture capitalist and his experience of serving on the board of directors for several public and private pharmaceutical and life sciences companies.

Edward Mathers has been a member of our Board since July 2009 and a member of our Compensation Committee since its formation in August 2016. Mr. Mathers is currently a partner at New Enterprise Associates, Inc., a global venture capital firm that invests in technology and healthcare companies. Mr. Mathers is currently a director of ObsEva SA (Nasdaq: OBSV), Ra Pharmaceuticals, Inc. (Nasdaq: RARX), Rhythm Pharmaceuticals, Inc. (Nasdaq: RYTM), Synlogic, Inc. (Nasdaq: SYBX) and a number of private life sciences companies. From July 2002 to August 2008, Mr. Mathers was the executive vice president, corporate development and venture of MedImmune, Inc. From August 2000 to July 2002, he was the vice president, marketing and corporate licensing and acquisitions, of Nektar Therapeutics, Inc. Prior to this, Mr. Mathers worked at Glaxo Wellcome, Inc. from July 1997 to August 2000, where he last held the role of vice president, e-business. Mr. Mathers graduated from the North Carolina State University with a Bachelor of Science in Chemistry. We believe Mr. Mathers is qualified to serve on our Board due to his experience as a venture capitalist, his experience as an executive and in business development and his experience in serving on the board of directors for several public and private pharmaceutical and life sciences companies.

Dr. Isaac Cheng has been a member of our Board since January 2010 and a member of our Audit Committee since its formation in August 2016. Dr. Cheng is currently an investment professional at the Morningside Technology Advisory, LLC, a division of the Morningside Group, a group that invests in venture

capital and private equity opportunities. He currently sits on the board of directors of NuCana PLC (Nasdaq: NCNA) and also sits on the boards of several of Morningside Group's private life sciences portfolio companies. Dr. Cheng previously served as director of research and development at Serica Technologies, Inc., from April 2004 to January 2005. Prior to that, Dr. Cheng was a scientific associate director of clinical development and medical affairs at Novartis Pharmaceuticals Corporation from March 2002 to April 2004. Dr. Cheng was also the recipient of a Howard Hughes Medical Institute Research Fellowship which supported his research in the Genetics and Aging Unit of the Massachusetts General Hospital and Harvard Medical School. Dr. Cheng graduated from the Tufts University School of Medicine with a Doctor of Medicine. We believe Dr. Cheng is qualified to serve on our Board due to his financial expertise, experience as a venture capitalist, industry experience and his experience in serving on the board of directors for several public and private life sciences companies.

Dr. Ralph Snyderman has been a member of our Board since February 2007, the Chairman of our Nominating and Corporate Governance Committee since its formation in , 2018 and a member of our Research and Development Committee since its formation in May 2017. Dr. Snyderman is currently a director of CareDx, Inc. (Nasdaq: CDNA), iRhythm Technologies, Inc. (Nasdaq: IRTC) and a number of private life sciences companies. Dr. Snyderman also served as a director of Argos Therapeutics, Inc. (Nasdaq: ARGS) from December 2016 until March 2017. Dr. Snyderman is currently Chancellor Emeritus of Duke University, the James B. Duke Professor of Medicine, as well as a director of the Duke Center for Research on Personalized Health Care. From January 1989 to July 2004, he served as Chancellor for Health Affairs and Dean of the Duke University School of Medicine. From July 1998 to July 2004, Dr. Snyderman also oversaw the development of the Duke University Health System as its first president and chief executive officer. From January 1987 to June 1989, Dr. Snyderman served as senior vice president, medical research and development at Genentech, Inc. From February 1972 to June 1987, he was a Professor of Medicine at the Duke University. From July 1970 to February 1972, Dr. Snyderman started his career at the National Institutes of Health as a senior investigator. Dr. Snyderman previously served as a venture partner at New Enterprise Associates, Inc., a venture capital firm, from January 2006 to November 2009. Dr. Snyderman graduated from Washington College with a Bachelor of Science and from the State University of New York Downstate Medical Center with a Doctor of Medicine. Dr. Snyderman holds an honorary Doctor of Science from the State University of New York and an honorary Doctor of Science from Washington College. He currently holds memberships in the American Academy of Arts & Sciences, the National Academy of Medicine as well as the Association of American Physicians. Dr. Snyderman is also a recipient of several awards, including the Pioneer Award by the Personalized Medicine World Congress in 2016, as well as the North American Healthcare Lifetime Achievement Award by Frost & Sullivan in 2008 for his leadership in the field of personalized health care. We believe Dr. Snyderman is qualified to serve on our Board due to his extensive industry experience and knowledge and his experience serving on the board of directors of several public and private biotechnology and life sciences companies.

Arthur Kirsch has been a member of our Board since September 2016 and the Chairman of our Audit Committee since its formation in August 2016. Mr. Kirsch is currently a director of Aralez Pharmaceuticals, Inc. (Nasdaq: ARLZ). From August 2015 until October 2016, Mr. Kirsch served as a director of Immunomedics, Inc. (Nasdaq: IMMU). Since June 2005, Mr. Kirsch has served as the managing director and senior advisor, as well as global head of medical devices and diagnostics, of GCA Global, LLC, a global investment banking firm. From May 1994 to May 2004, he served as executive vice president, head of research at Vector Securities, LLC. From February 1990 to May 1993, Mr. Kirsch served as president of Natwest Securities Limited. From June 1979 to February 1990, Mr. Kirsch worked at Drexel Burnham Lambert, Inc., an investment banking firm, where he held the position of executive vice president, head of equity division. Mr. Kirsch graduated from the University of Rhode Island with a Bachelor of Science and also holds a Master of Business Administration from The City University of New York. We believe Mr. Kirsch is qualified to serve on our Board due to his business and financial expertise and his experience serving on the boards of directors of several public pharmaceutical and life sciences companies.

Jason Rushton has been a member of our Board since July 2017. Mr. Rushton has been a partner at Xeraya Capital Labuan Ltd, a life science venture capital fund of Khazanah Nasional, a Malaysian sovereign wealth fund, since October 2016. From February 2011 to June 2016, he served as director in the corporate finance advisory arm of Deloitte AG, where he provided corporate finance advisory services to clients in the life sciences industry. From November 2010 to January 2011, Mr. Rushton was self-employed as a consultant providing independent strategy consulting services. From September 2006 to May 2010, Mr. Rushton was an investment manager at Inventages Venture Capital Investment, Inc., a life science investment fund established by Nestlé S.A. From July 2000 to August 2006, Mr. Rushton was also an associate in Merlin Biosciences Fund, L.P., a life science investment fund, and, from June 1997 to July 2000, he was a management consultant in PA Consulting Group, a global management consulting firm. From 1994 to June 1997, Mr. Rushton worked as a biologist in Eli Lilly and Company, a global pharmaceutical company. Mr. Rushton holds a Master of Science in Immunology from the University of Birmingham. We believe Mr. Rushton is qualified to serve on our Board due to his business and financial expertise and his experience as a venture capitalist in the healthcare industry.

Raman Singh has been a member of our Board since February 2018 and a member of our Nominating and Corporate Governance Committee since its formation in , 2018. Since October 2011, Mr. Singh has served as the chief executive officer of Mundipharma Pte Limited, which is part of a network of independent associated companies active in the fields of analgesia, oncology, ophthalmology, respiratory, specialty care and consumer health. Mr. Singh graduated from Osmania University with a Bachelors in Mechanical Engineering in 1992. He also holds Masters in International Management from Thunderbird School of Global Management and in Business Administration from Assumption University. We believe Mr. Singh is qualified to serve on our Board due to his vast industry experience and knowledge as well as his business experience.

Key Employees

Timothy Albury has been our Senior Vice President, Chief Accounting Officer since January 2018. From June 2013 until January 2018, Mr. Albury served as our Chief Financial Officer. From September 2009 to June 2013, Mr. Albury served as the chief financial officer of Osmotica Pharmaceutical Corp., a multinational specialty pharmaceutical company in the field of osmotic drug delivery. Mr. Albury graduated from Liberty University with a Bachelor of Science and completed a Master of Professional Accounting program at the University of Miami. He is also a Certified Public Accountant with the North Carolina State Board of Certified Public Accountant Examiners and the State of Florida Board of Accountancy as well as a member of the American Institute of Certified Public Accountants.

Jason Adair has been our Vice President, Business Development and Strategy since January 2016. From August 2011 through December 2015, Mr. Adair served as the executive director of corporate development at BioCryst Pharmaceuticals, Inc. (Nasdaq: BCRX). Mr. Adair holds a Bachelor of Science in Chemistry from Wake Forest University and a Master of Business Administration from the Tuck School of Business at Dartmouth College.

Corporate Governance

Board Composition

Our amended and restated bylaws that will become effective upon the closing of this offering provides that our Board shall consist of that number of directors to be determined from time to time by vote of our Board, provided that such authorized number shall be no fewer than three and no greater than 11 members, and is currently set at nine members. Currently our Board consists of Drs. Bloch, Cheng, Rudnick and Snyderman, and Messrs. Fowler, Kirsch, Mathers, Rushton and Singh.

In accordance with our amended and restated bylaws and our amended and restated certificate of incorporation, which will be in effect upon the closing of this offering, our Board will be divided into three classes with staggered three-year terms. At each annual meeting of stockholders after the initial

classification, the successors to the directors whose terms will then expire will be elected to serve from the time of election and qualification until the third annual meeting following their election. Our directors will be divided among the three classes as follows:

- the Class I directors will be Mr. Mathers and Dr. Snyderman, and their terms will expire at the annual meeting of stockholders to be held in 2019;
- the Class II directors will be Drs. Bloch and Rudnick and Mr. Singh, and their terms will expire at the annual meeting of stockholders to be held in 2020; and
- the Class III directors will be Messrs. Fowler and Kirsch, and their terms will expire at the annual meeting of stockholders to be held in 2021.

Effective upon completion of this offering, Dr. Cheng and Mr. Rushton will no longer serve on our Board.

Any increase or decrease in the number of directors will be distributed among the three classes so that, as nearly as possible, each class will consist of one-third of the directors. This classification of our Board may have the effect of delaying or preventing changes in control of our company.

Election Arrangements

Each of our directors were elected pursuant to a voting agreement by and among us, our preferred stockholders and our common stockholders. These provisions will terminate upon the closing of this offering and there will be no further contractual obligations, or terms of our outstanding securities, regarding the election of our directors.

Director Independence

Our Board has determined that upon completion of this offering, Drs. Bloch, Rudnick and Snyderman, and Messrs. Kirsch, Mathers and Singh will be independent directors. In making this determination, our Board applied the standards set forth in the Nasdaq listing standards and in Rule 10A-3 under the Securities Exchange Act of 1934, as amended, or the Exchange Act. In evaluating the independence of Drs. Bloch, Rudnick and Snyderman, and Messrs. Kirsch, Mathers and Singh, our Board considered their current and historical employment, any compensation we have given to them, any transactions we have entered into with them, their beneficial ownership of our capital stock, their ability to exert control over us, all other material relationships they have had with us and the same facts with respect to their immediate families. The Board also considered all other relevant facts and circumstances known to it in making this independence determination. In addition, Drs. Bloch, Rudnick and Snyderman, and Messrs. Kirsch, Mathers and Singh are non-employee directors, as defined in Rule 16b-3 of the Exchange Act.

Code of Conduct

In October 2016, we adopted a code of conduct, which applies to all of our employees, officers and directors, including those officers responsible for financial reporting. Prior to consummation of this offering, we will amend our code of conduct to qualify as a "code of ethics" as defined by the rules of the SEC. Following the completion of this offering, the code of conduct will be available on our website at www.liquidia.com. We intend to disclose any amendments to the code of conduct, or any waivers of its requirements, on our website to the extent required by the applicable rules and exchange requirements. The inclusion of our website address in this prospectus does not incorporate by reference the information on or accessible through our website into this prospectus.

Board Committees

Audit Committee

The Audit Committee of our Board oversees the quality and integrity of our financial statements and other financial information, accounting and financial reporting processes, internal controls and procedures for financial reporting and internal audit function. It also oversees the audit and other services provided by our independent auditors and is directly responsible for the appointment, independence, qualifications, compensation and oversight of the independent auditor. In addition, our audit committee is responsible for

reviewing our compliance with legal and regulatory requirements, and it assists the Board in an initial review of recommendations to the Board regarding proposed business transactions.

The current members of our Audit Committee are Drs. Bloch and Cheng and Mr. Kirsch. The Chairman of our Audit Committee is Mr. Kirsch. Upon the effectiveness of the registration statement of which this prospectus forms a part, the members of our Audit Committee will be Dr. Bloch and Messrs. Kirsch and Singh, with Mr. Kirsch continuing to serve as Chairman. All members of our audit committee meet the requirements for financial literacy under the applicable rules and regulations of the SEC and Nasdaq. Our Board has determined that Mr. Kirsch is an "audit committee financial expert" as defined under the applicable rules of the SEC and has the requisite financial sophistication as defined under the applicable rules and regulations of Nasdaq. Under the rules of the SEC, members of the audit committee must also meet heightened independence standards. Our Board has determined that each of Dr. Bloch and Messrs. Kirsch and Singh are independent under the heightened audit committee independence standards of the SEC and Nasdaq. The Audit Committee operates under a written charter that satisfies the applicable standards of the SEC and Nasdaq.

Compensation Committee

The Compensation Committee of our Board reviews and determines the compensation of all of our executive officers and establishes our compensation policies and programs. Specific responsibilities of our compensation committee will include, among other things, evaluating the performance of our Chief Executive Officer and determining our Chief Executive Officer's compensation. It also determines the compensation of our other executive officers. In addition, our Compensation Committee administers all equity compensation plans and has the authority to grant equity awards subject to the terms and conditions of such equity compensation plans. Our Compensation Committee also reviews and approves various other compensation policies and matters, including establishing policies and making recommendations to our Board regarding director compensation. Our Compensation Committee may also review and discuss with management the compensation discussion and analysis that we may be required from time to time to include in SEC filings, and it may prepare a compensation committee report on executive compensation as may be required from time to time to be included in our annual proxy statements or annual reports on Form 10-K filed with the SEC.

The current members of our Compensation Committee are Drs. Bloch and Rudnick and Mr. Mathers. The Chairman of our Compensation Committee is Dr. Bloch. Upon the effectiveness of the registration statement of which this prospectus forms a part, the members of our Compensation Committee will be Drs. Bloch and Rudnick and Mr. Mathers, with Dr. Bloch continuing to serve as Chairman. Each of the members of our Compensation Committee is independent under the applicable rules and regulations of Nasdaq, and is a "non-employee director" as defined in Rule 16b-3 promulgated under the Exchange Act. The Compensation Committee operates under a written charter that satisfies the applicable standards of the SEC and Nasdaq.

Nominating and Corporate Governance Committee

The Nominating and Corporate Governance Committee of our Board, which will be formed prior to the consummation of this offering, will oversee the nomination of directors, including, among other things, identifying, evaluating and making recommendations of nominees to our Board, and evaluating the performance of our Board and individual members of our Board. When identifying nominees, the Nominating and Corporate Governance Committee will consider, among other things, a nominee's character and integrity, level of education and business experience, financial literacy and commitment to represent long-term interests of our equity holders. Our Nominating and Corporate Governance Committee will also be responsible for reviewing developments in corporate governance practices, evaluating the adequacy of our corporate governance practices and making recommendations to our Board concerning corporate governance matters.

Upon its formation, the members of our Nominating and Corporate Governance Committee will be Drs. Snyderman and Rudnick and Mr. Singh, with Dr. Snyderman serving as the Chairman. The composition

of our Nominating and Corporate Governance Committee will, as of the time of the effectiveness of the registration statement of which this prospectus forms a part, meet the requirements for independence under the rules and regulations of the SEC and the listing standards of Nasdaq. The Nominating and Corporate Governance Committee will operate under a written charter that satisfies the applicable standards of the SEC and Nasdaq.

Research and Development Committee

The current members of our Research and Development Committee are Drs. Rudnick and Snyderman, who are, respectively, the Chairman and Vice-Chairman of our Research and Development Committee. The role of our Research and Development Committee is to make recommendations to our Board regarding our research and development functions and programs, including our research and development strategies, priorities and opportunities.

Compensation Committee Interlocks and Insider Participation

None of the members of our Compensation Committee is an executive officer or employee of our company. None of our executive officers serves as a member of the Compensation Committee of any entity that has one or more executive officers serving on our Compensation Committee.

Director Compensation

The following table presents the total compensation for each person who served as a non-employee member of our Board and received compensation for such service during the fiscal year ended December 31, 2017. Other than as set forth in the table and described more fully below, we did not pay any compensation, make any equity awards or non-equity awards to or pay any other compensation to any of the non-employee members of our Board in 2017. We reimburse non-employee members of our Board for reasonable travel expenses. Mr. Fowler, a member of our Board who also serves as our Chief Executive Officer, does not receive any additional compensation for his service as a director. Mr. Fowler's compensation for service as an employee for 2017 is presented in "Executive Compensation — 2017 Summary Compensation Table."

	Fees Earned or Paid in Cash ($)[1]	Total ($)
Dr. Seth Rudnick	120,000	120,000
Dr. Stephen Bloch[2]	—	—
Edward Mathers[2]	—	—
Dr. Isaac Cheng[2]	—	—
Dr. Ralph Snyderman	60,000	60,000
Arthur Kirsch	50,000	50,000
Jason Rushton[2]	—	—

(1) Fees earned pursuant to a board service agreement.

(2) Investor-appointed directors did not receive fees or other compensation for their service on our Board.

The following table lists all outstanding option awards held by our non-employee directors as of December 31, 2017:

Name	Option Awards
Dr. Seth Rudnick	629,016
Dr. Stephen Bloch	—
Edward Mathers	—
Dr. Isaac Cheng	—
Dr. Ralph Snyderman	92,495
Arthur Kirsch	150,000
Jason Rushton	—
Raman Singh	—

Board Service Agreements

Mr. Kirsch and Drs. Rudnick and Snyderman are each parties to individual board service agreements with us which shall terminate upon consummation of this offering. Each individual board service agreement is described below.

Rudnick

On April 1, 2015, we and Dr. Rudnick entered into a board service agreement whereby, in exchange for Dr. Rudnick serving as a non-employee member of the Board and providing periodic additional consulting or advisory services to us from time to time, we (i) pay Dr. Rudnick $120,000 annually for serving on the Board and (ii) granted a nonstatutory stock option to Dr. Rudnick to purchase 205,000 shares of common stock, with an exercise price equal to $0.28 per share and vesting over a four year period commencing July 1, 2016, pursuant to the Liquidia Technologies, Inc. Stock Option Plan, as amended, or the 2004 Plan.

Snyderman

On April 1, 2015, we and Dr. Snyderman entered into a board service agreement whereby, in exchange for Dr. Snyderman serving as a non-employee member of the Board and providing periodic additional consulting or advisory services to us from time to time, we (i) pay Dr. Snyderman $60,000 annually and (ii) granted a nonstatutory stock option to Dr. Snyderman to purchase 100,000 shares of common stock, with an exercise price equal to $0.28 per share and vesting over a four year period commencing April 1, 2015, pursuant to the 2004 Plan.

Kirsch

On December 7, 2016, we and Mr. Kirsch entered into a board service agreement whereby, in exchange for Mr. Kirsch acting as a non-employee member of the Board, acting as a non-employee chairman of the Audit Committee and providing periodic additional consulting or advisory services to us from time to time, we (i) pay Mr. Kirsch $35,000 annually for serving on the Board, (ii) pay Mr. Kirsch $15,000 annually for participating as the Chairman of the Audit Committee and (iii) granted a nonstatutory stock option to Mr. Kirsch to purchase 150,000 shares of common stock, with an exercise price equal to $1.21 per share and vesting over a four year period commencing December 7, 2016, pursuant to the 2016 Plan.

2018 Option Grant to Raman Singh

In connection with his appointment to our Board, on March 7, 2018 we granted Mr. Singh an option to purchase 285,000 shares of common stock, or the Singh Option Shares, under our 2016 Plan, with one-third of the Singh Option Shares vesting on March 7, 2019, and the remaining two-thirds of the Singh Option Shares vesting monthly thereafter over a period of two years.

Other 2018 Option Grants

On March 7, 2018, we granted each of Mr. Kirsch and Drs. Rudnick and Snyderman options to purchase 135,000, 930,000 and 460,000 shares of common stock, respectively, under our 2016 Plan, with

one-third of such option shares vesting on March 7, 2019 and the remaining two-thirds of such option shares vesting monthly thereafter over a period of two years.

On the date of execution of the underwriting agreement, we expect to grant, under the 2018 Plan, certain directors an aggregate of shares of common stock issuable upon the exercise of stock options. These options will have an exercise price equal to the initial public offering price.

Non-Employee Director Compensation Policy

Our Board has adopted a non-employee director compensation policy, effective upon effectiveness of the registration statement of which this prospectus forms a part, that is designed to enable us to attract and retain, on a long-term basis, highly qualified non-employee directors. Under the policy, each director who is not an employee will be paid cash compensation from and after the completion of this offering, as set forth below:

	Member Annual Fee ($)	Chairman Additional Annual Fee ($)
Board of Directors	35,000	25,000
Audit Committee	7,500	15,000
Compensation Committee	5,000	10,000
Nominating and Corporate Governance Committee	3,750	7,500

Additionally, the Chairman of our Research and Development Committee will be paid $32,000 annually in cash compensation and the Vice-Chairman of our Research and Development Committee will be paid $15,000 annually in cash compensation.

EXECUTIVE COMPENSATION

The following section provides compensation information pursuant to the scaled disclosure rules applicable to "emerging growth companies" under the rules of the SEC.

Named Executive Officers

Our named executive officers for the year ended December 31, 2017, which consisted of our principal executive officer and two other most highly compensated executives, were:

- Neal Fowler;
- Timothy Albury; and
- Robert Lippe.

Timothy Albury ceased service as our Chief Financial Officer, and Kevin Gordon began service as our President and Chief Financial Officer, on January 22, 2018.

This discussion may contain forward-looking statements that are based on our current plans, considerations, expectations and determinations regarding future compensation programs. Actual compensation programs that we adopt following the completion of this offering may differ materially from the currently planned programs summarized in this discussion. See "Cautionary Note Regarding Forward-Looking Statements."

2017 Summary Compensation Table

The following table sets forth certain information with respect to the total compensation paid to the named executive officers for the year ended December 31, 2017:

Name and principal position	Year	Salary ($)	Non-equity incentive plan compensation ($)[1]	All other compensation ($)[2]	Total ($)
Neal Fowler *Chief Executive Officer*	2017	411,769	164,800	10,800	587,369
Timothy Albury *Former Chief Financial Officer*[3]	2017	341,847	109,454	10,800	462,101
Robert Lippe *Chief Operations Officer*	2017	397,048	127,126	10,800	534,974

(1) Represents bonuses earned during the fiscal year covered.

(2) Represents contributions to our 401(k) plan on behalf of each of our named executive officers.

(3) On January 22, 2018, Mr. Albury's title changed from Chief Financial Officer to Senior Vice President, Chief Accounting Officer.

Narrative Disclosure to 2017 Summary Compensation Table

2017 Base Salary

The named executive officers receive a base salary to compensate them for services rendered to our company. The base salary payable to each named executive officer is intended to provide a fixed component of compensation reflecting the executive's skill set, experience, role and responsibilities.

We expect that, following the completion of this offering, base salaries for the named executive officers will be reviewed periodically by the Board and/or the Compensation Committee, with adjustments expected to be made generally in accordance with the applicable employment agreements, as well as financial and other business factors affecting our company, and to maintain a competitive compensation package for our executive officers.

2017 Performance-Based Compensation and Bonuses

Our named executive officers are entitled to annual bonuses calculated as a target percentage of their annual base salary based upon our Compensation Committee's assessment of their performance and our attainment of targeted goals as set by the Compensation Committee in their sole discretion, and communicated to each named executive officer. For 2017, bonuses were based on the Compensation Committee's assessment of each named executive officer's and our performance.

2017 Other Compensation

We contribute to our 401(k) plan on behalf of our named executive officers, but we have no pension benefits, nonqualified defined contribution or other nonqualified deferred compensation plans for our named executive officers.

Fowler and Gordon Employment Agreements

We entered into an amended and restated employment agreement with Mr. Fowler, our Chief Executive Officer, on January 31, 2018, and an employment agreement with Mr. Gordon, our Chief Financial Officer, on January 22, 2018, together, the Executive Employment Agreements, and individually, an Executive Employment Agreement, pursuant to which Mr. Fowler is entitled to receive an annual base salary of $480,000 and an annual target bonus equal to 50% of his annual base salary and Mr. Gordon is entitled to receive an annual base salary of $450,000 and an annual target bonus equal to 40% of his annual base salary. The annual bonus amounts shall be based upon our Board's assessment of Messrs. Fowler and Gordon's respective performances and our attainment of targeted goals as set by the Board in its sole discretion. The Executive Employment Agreements also contain provisions related to a confidentiality, inventions assignment, non-competition and non-solicitation and non-disparagement, pursuant to which each of Messrs. Fowler and Gordon agree to refrain from disclosing our confidential information during or at any time following their employment with us and from competing with us or soliciting our employees or customers during their employment and for 12 months following termination of their employment.

The Executive Employment Agreements provide that, in the event that either Messrs. Fowler's or Gordon's employment is terminated by us without "cause" or by him for "good reason," subject to the execution and effectiveness of a separation agreement and release, he will be entitled to receive (i) an amount equal to (x) 12 months of base salary plus the amount of the bonus he would have earned had he remained employed pro-rated based on the number of days that the he was employed with us during the applicable fiscal year, payable on our normal payroll cycle if such termination is not in connection with a "change in control" or (y) 18 months of base salary plus an amount equal to 1.5 times his target bonus and 100% vesting of the unvested portion of his equity for Mr. Fowler and 12 months of base salary plus an amount equal to his target bonus and 100% vesting of the unvested portion of his equity for Mr. Gordon if such termination is within the 12 month period following a "change in control," and (ii) reimbursement of COBRA premiums for health benefit coverage for him and his immediate family in an amount equal to the monthly employer contribution that we would have made to provide health insurance to Messrs. Fowler or Gordon, as applicable had he remained employed with us for up to 12 months following termination if such termination is not in connection with a "change in control."

Under the Executive Employment Agreements, "cause" means that we have determined, in our sole discretion, that Messrs. Fowler or Gordon has engaged in any of the following: (a) any material breach of the terms of the applicable Executive Employment Agreement, or a willful failure to diligently and properly perform material duties for us; (b) misappropriation or unauthorized use of our tangible or intangible property that causes or is likely to cause material harm to us or our reputation, or material breach of the

confidentiality, inventions and non-competition agreement entered between him and our company or any other similar agreement regarding confidentiality, intellectual property rights, non-competition or non-solicitation; (c) any material failure to comply with our policies or any other policies and/or directives of our Board; (d) use of illegal drugs or any illegal substance, or use of alcohol in any manner that materially interferes with the performance of employment duties; (e) any dishonest or illegal action, or any other action, whether or not dishonest or illegal, which is materially detrimental to our interest and well-being; (f) failure to disclose any material conflict of interest in a transaction being us and any third party which is materially detrimental to our interest and well-being; (g) any adverse action or omission which would be required to be disclosed pursuant to public securities laws or limit our ability, or the ability of any entity affiliated with us, to sell securities under any federal or state law which would disqualify us from any exemption otherwise available to us; or (h) any material violation of our policies prohibiting unlawful harassment, discrimination, retaliation or workplace violence; provided that, before we may terminate Messrs. Fowler or Gordon for cause, if the grounds for such cause are reasonably capable of cure by him, we will provide him with written notice of the grounds of cause and provide him with 10 business days in which to cure such cause.

Under the Executive Employment Agreements, "good reason" means the occurrence of any of the following without the Messrs. Fowler's or Gordon's prior consent, as applicable: (a) a material diminution in the executive's authority, duties or responsibility; (b) a material diminution in the executive's base salary or bonus target; (c) a requirement that the executive report to an employee other than the Board for Mr. Fowler or the Chief Executive Officer for Mr. Gordon; (d) the executive's principal place of employment is relocated by more than 25 miles for Mr. Fowler and 50 miles for Mr. Gordon from our present location in Research Triangle Park, North Carolina; or (e) for Mr. Fowler only, materially breach our obligations under his Executive Employment Agreement. In addition, for any of the above events to constitute good reason, Mr. Fowler or Mr. Gordon, as applicable, must inform us of the existence of the event within 60 days of the initial existence of the event, after which date we shall have no less than 30 days to cure the event which otherwise would constitute good reason, and Mr. Fowler or Mr. Gordon, as applicable, must terminate his employment with us for such good reason no later than 90 days after the initial existence of the event.

Pursuant to his Executive Employment Agreement, on March 7, 2018 Mr. Gordon was granted a stock option award to purchase shares of our common stock equal to 1% (2,146,767 shares) of our capital stock on a fully-diluted basis on the date of grant and a restricted stock unit award equal to approximately 1% (2,146,767 shares) of our capital stock on a fully-diluted basis on the date of grant, or the Sign-On Award. The option and restricted stock unit award vest as to 25% of the shares underlying the option and the award on the first anniversary of Mr. Gordon's start date and, as to the remainder, in 36 equal monthly installments on the first day of each month thereafter, subject to Mr. Gordon's continued employment. Further, on the date of execution of the underwriting agreement Mr. Gordon is also entitled to (i) an additional stock option award under the 2018 Plan to purchase shares of our common stock equal to 1% of our capital stock on a fully-diluted basis on the date of grant (shares assuming we sell shares in this offering) with an exercise price per share equal to the initial public offering price and (ii) a restricted stock unit award equal to 1% of our capital stock on a fully-diluted basis on the date of grant (shares assuming we sell shares in this offering). These additional awards will be on the same terms as the Sign-On Award (except the vesting start date is as of the grant date) and granted upon the earlier of (i) us consummating an initial public offering of our common stock or (b) us entering into an equity financing transaction or a series of such transactions up to an aggregate amount of $20 million (excluding the closing of the Series D transaction), or the Additional Equity Grant. Such Additional Equity Grant shall be granted, if at all, on the date of the execution of the underwriting agreement of the initial public offering or closing date of the equity financing, as applicable.

Lippe Employment Agreement

In connection with this offering, we will enter into a new employment agreement with Mr. Lippe, or the Lippe Employment Agreement, which will take effect as of the effectiveness of the registration statement of

which this prospectus forms a part and which shall supersede Mr. Lippe's employment agreement entered into on April 1, 2017. The Lippe Employment Agreement reflects updated and enhanced severance terms which include certain change in control severance benefits.

Pursuant to the terms of Lippe Employment Agreement, Mr. Lippe shall be entitled to an annual base salary of $409,189, which reflects Mr. Lippe current salary and is eligible to receive a discretionary annual cash bonus of up to 40% of his annualized base salary, which is consistent with his current agreement.

The base salary of Mr. Lippe may be increased from time to time by our Board, and, notwithstanding anything to the contrary, may also be reduced if our Board determines such reduction is necessary and justified by our financial condition and implements an equal percentage reduction in the base salaries of all of our executive officers, provided that such reduction will not be greater than 10% of his base salary.

In accordance with the employment practices in North Carolina, Mr. Lippe will be employed by us on an at-will basis, meaning that either we or such executives may terminate their employment with us at any time without giving advance notice. The Lippe Employment Agreement shall be governed by the laws of North Carolina and the notice periods mentioned above that have been included in the Lippe Employment Agreement may be subject to interpretation in accordance with the laws of North Carolina and the employment practices in North Carolina as well.

In the event we terminate Mr. Lippe's employment with us at any time without "cause" or Mr. Lippe resigns from his employment with us for "good reason", as such terms are defined in the Lippe Employment Agreement, then he will be entitled to receive, subject to his compliance with certain obligations:

(a) an amount equal to his then-current salary for nine months, or the Lippe Severance Period;

(b) a pro-rated bonus for the financial year in which the termination of Mr. Lippe's employment occurred; and

(c) payment of the employer portion of the premiums required to continue his group healthcare coverage under the applicable provisions of the U.S. Consolidated Omnibus Budget Reconciliation Act of 1985, or COBRA, provided that he elects to continue and remains eligible for these benefits, until the earliest of (i) the close of the Lippe Severance Period, (ii) the expiration of his eligibility for the continuation coverage under COBRA or (iii) the date when he becomes eligible for substantially equivalent health insurance coverage in connection with new employment.

In the event Mr. Lippe's employment with us is terminated for cause or due to his death or "disability", as defined in the Lippe Employment Agreement or Mr. Lippe resigns from his employment with us for any reason other than a resignation for good reason, he will not receive any severance compensation or benefits.

Under the Lippe Employment Agreement, "cause" shall mean that we have determined, in our sole discretion, that he has engaged in any of the following: (a) any material breach of the terms of the Lippe Employment Agreement, or a willful failure to diligently and properly perform material duties for us; (b) misappropriation or unauthorized use of our tangible or intangible property that causes or is likely to cause material harm to us or our reputation, or material breach of the confidentiality, inventions and non-competition agreement entered between him and our company or any other similar agreement regarding confidentiality, intellectual property rights, non-competition or non-solicitation; (c) any material failure to comply with our policies or any other policies and/or directives of our Board; (d) use of illegal drugs or any illegal substance, or use of alcohol in any manner that materially interferes with the performance of employment duties; (e) any dishonest or illegal action, or any other action, whether or not dishonest or illegal, which is materially detrimental to our interest and well-being; (f) failure to disclose any material conflict of interest in a transaction being us and any third party which is materially detrimental to our interest and well-being; (g) any adverse action or omission which would be required to be disclosed

pursuant to public securities laws or limit our ability, or the ability of any entity affiliated with us, to sell securities under any federal or state law which would disqualify us from any exemption otherwise available to us; (h) becoming prohibited by law or any order from any regulatory body or governmental body from being an employee or director of any company, firm or entity; provided that, before we may terminate Mr. Lippe for cause, if the grounds for such cause are reasonably capable of cure by him, we will provide him with written notice of the grounds of cause and provide him with 10 business days in which to cure such cause.

Under the Lippe Employment Agreement, "good reason" means the occurrence of any of the following without. Mr. Lippe's prior consent: (a) a material diminution in his authority, duties or responsibility; (b) a material diminution in his base compensation; (c) a requirement that he report to an employee other than the Chief Executive Officer; (d) his principal place of employment is relocated by more than 25 miles from our present location in Research Triangle Park, North Carolina; or (e) we materially breach our obligations under the Lippe Employment Agreement. In addition, for any of the above events to constitute good reason, Mr. Lippe must inform us of the existence of the event within 60 days of the initial existence of the event, after which date we shall have no less than 30 days to cure the event which otherwise would constitute good reason, and Mr. Lippe must terminate his employment with us for such good reason no later than 90 days after the initial existence of the event. Also, any action taken by us to accommodate a disability of Mr. Lippe or pursuant to the U.S. Family and Medical Leave Act of 1993 does not constitute good reason.

In the event we, or any surviving or acquiring corporation, terminate Mr. Lippe's employment without cause or he resigns for good reason within 12 months following the effective date of a "change in control", as defined in the 2018 Plan, then Mr. Lippe will be eligible to receive, subject to his compliance with certain obligations, the same severance benefits on the same conditions as if he had been terminated by us without cause; provided, however, that (a) the Lippe Severance Period shall be increased to 12 months, (b) Mr. Lippe's annual bonus shall instead be paid at the target amount for the Lippe Severance Period, and (c) in the event that Mr. Lippe's outstanding equity as of the closing of the change in control is assumed or continued (in accordance with its terms) by the surviving entity in a change in control, then 100.0% of the unvested portion of such equity shall become vested.

Albury Employment Agreement

In connection with this offering, we will enter into a new employment agreement with Mr. Albury, or the Albury Employment Agreement, which will take effect as of the effectiveness of the registration statement of which this prospectus forms a part and which shall supersede Mr. Albury's amended and restated employment agreement entered into on January 22, 2018. The Albury Employment Agreement reflects updated and enhanced severance terms which include certain change in control severance benefits.

Pursuant to the terms of Albury Employment Agreement, Mr. Albury shall be entitled to an annual base salary of $352,000 and shall be eligible to receive a discretionary annual cash bonus of up to 25% of his annualized base salary, which amounts are consistent with what Mr. Albury is entitled to, and eligible to receive under, his current amended and restated employment agreement.

The base salary of Mr. Albury may be increased from time to time by our Board, and, notwithstanding anything to the contrary, may also be reduced if our Board determines such reduction is necessary and justified by our financial condition and implements an equal percentage reduction in the base salaries of all of our executive officers, provided that such reduction will not be greater than 10% of his base salary.

In accordance with the employment practices in North Carolina, Mr. Albury will be employed by us on an at-will basis, meaning that either we or such executive may terminate his employment with us at any time without giving advance notice. The Albury Employment Agreement is governed by the laws of North Carolina and the notice periods mentioned above that have been included in the Albury Employment Agreement may be subject to interpretation in accordance with the laws of North Carolina and the employment practices in North Carolina as well.

In the event we terminate Mr. Albury's employment with us at any time without "cause" or Mr. Albury terminates his employment with us for "good reason", as such terms are defined in the Albury Employment Agreement, then the relevant executive will be entitled to receive, subject to his compliance with certain obligations:

(a) an amount equal to his then-current salary for six months, or the Albury Severance Period;

(b) a pro-rated bonus for the financial year in which the termination of Mr. Albury's employment occurred; and

(c) payment of the employer portion of the premiums required to continue his group healthcare coverage under the applicable provisions of COBRA, provided that he elects to continue and remains eligible for these benefits, until the earliest of (i) the close of the Albury Severance Period, (ii) the expiration of his eligibility for the continuation coverage under COBRA or (iii) the date when he becomes eligible for substantially equivalent health insurance coverage in connection with new employment.

In the event Mr. Albury's employment with us is terminated for cause or due to his death or "disability", as defined in the Albury Employment Agreement, or Mr. Albury resigns from his employment with us for any reason other than a resignation for good reason, he will not receive any severance compensation or benefits.

Under the Albury Employment Agreement, "cause" means that we have determined, in our sole discretion, that he has engaged in any of the following: (a) any material breach of the terms of the Albury Employment Agreement, or a willful failure to diligently and properly perform material duties for us; (b) misappropriation or unauthorized use of our tangible or intangible property that causes or is likely to cause material harm to us or our reputation, or material breach of the Confidentiality, Inventions and Non-Competition Agreement entered between him and our company or any other similar agreement regarding confidentiality, intellectual property rights, non-competition or non-solicitation; (c) any material failure to comply with our policies or any other policies and/or directives of our Board; (d) use of illegal drugs or any illegal substance, or use of alcohol in any manner that materially interferes with the performance of employment duties; (e) any dishonest or illegal action, or any other action, whether or not dishonest or illegal, which is materially detrimental to our interest and well-being; (f) failure to disclose any material conflict of interest in a transaction being us and any third party which is materially detrimental to our interest and well-being; (g) any adverse action or omission which would be required to be disclosed pursuant to public securities laws or limit our ability, or the ability of any entity affiliated with us, to sell securities under any federal or state law which would disqualify us from any exemption otherwise available to us; (h) becoming prohibited by law or any order from any regulatory body or governmental body from being an employee or director of any company, firm or entity; provided that, before we may terminate Mr. Albury for cause, if the grounds for such cause are reasonably capable of cure by him, we will provide him with written notice of the grounds of cause and provide him with 10 business days in which to cure such cause.

Under the Albury Employment Agreement, "good reason" means the occurrence of any of the following without. Mr. Albury's prior consent: (a) a material diminution in the executive's authority, duties or responsibility; (b) a material diminution in the executive's base compensation; (c) a requirement that the executive report to an employee other than the Chief Financial Officer; (d) the executive's principal place of employment is relocated by more than 50 miles from our present location in Research Triangle Park, North Carolina; or (e) we materially breach our obligations under the Albury Employment Agreement. In addition, for any of the above events to constitute good reason, Mr. Albury must inform us of the existence of the event within 60 days of the initial existence of the event, after which date we shall have no less than 30 days to cure the event which otherwise would constitute good reason, and Mr. Albury must terminate his employment with us for such good reason no later than 90 days after the initial existence of the event. Also, any action taken by us to accommodate a disability of Mr. Albury or pursuant to the U.S. Family and Medical Leave Act of 1993 does not constitute good reason.

In the event we, or any surviving or acquiring corporation, terminate Mr. Albury's employment without cause or he terminates his employment for good reason within 12 months following the effective date of a "change in control", as defined in the 2018 Plan, then Mr. Albury will be eligible to receive, subject to his compliance with certain obligations, the same severance benefits on the same conditions as if he had been terminated by us without cause; provided, however, that (a) the Albury Severance Period shall be increased to nine months, (b) Mr. Albury's annual bonus shall instead be paid at the target amount for the Albury Severance Period, and (c) in the event that Mr. Albury's outstanding equity as of the closing of the change in control is assumed or continued (in accordance with its terms) by the surviving entity in a change in control, then 100% of the unvested portion of such equity shall become vested.

Outstanding Equity Awards at December 31, 2017

The following table sets forth information concerning outstanding equity awards at December 31, 2017 for each of our named executive officers, all of which were granted under the 2004 Plan:

	Option Awards			
Name	Number of Securities Underlying Unexercised Options Exercisable (#)	Number of Securities Underlying Unexercised Options Unexercisable (#)	Option Exercise Price ($/share)	Option Expiration Date
Neal Fowler	1,000,000	—	0.50	05/13/2018
	1,058,201	—	0.11	11/23/2020
	405,023	—	0.23	11/21/2023
	825,000	495,000[1]	0.28	05/21/2025
Timothy Albury	129,815	—	0.23	11/21/2023
	52,669	—	0.23	11/21/2023
	155,833	174,167[1]	0.28	05/21/2025
Robert Lippe	250,000	296,875[2]	0.28	08/27/2025

(1) 2.084% of the shares underlying the option vest monthly commencing August 1, 2015, becoming fully vested on July 1, 2019.

(2) 25% of the shares underlying the options vested on July 13, 2016, with 2.084% of the shares vesting monthly thereafter, becoming fully vested on July 13, 2019.

2018 Equity Grants

On March 7, 2018, we granted incentive stock options to purchase shares of our common stock under the 2016 Plan, with an exercise price equal to $0.55 per share, to each of the following officers: (i) Neal Fowler, our Chief Executive Officer, for 3,900,000 shares; (ii) Kevin Gordon, our President and Chief Financial Officer, for 2,146,767 shares; (iii) Robert Lippe, our Chief Operations Officer, for 735,000 shares; (iv) Dr. Robert Roscigno, our Senior Vice President, Product Development, for 600,000 shares; (v) Dr. Benjamin Maynor, our Senior Vice President, Research and Development, for 700,000 shares; (vi) Jason Adair, our Vice President, Business Development and Strategy, for 350,000 shares; and (vii) Timothy Albury, our Senior Vice President, Chief Accounting Officer, for 514,000 shares. Such options, with the exception of the options granted to Mr. Albury, vest as to 25% on March 7, 2019, and, as to the remainder, in 36 equal monthly installments on the first day of each month thereafter. The options granted to Mr. Albury vest as to 25% on March 7, 2019, and, as to the remainder, in 12 equal monthly installments on the first day of each month thereafter.

On March 7, 2018, we granted Kevin Gordon a restricted stock unit award of 2,146,767 shares. The restricted stock unit award vests as to 25% of the shares underlying the award on January 22, 2019, and, as to the remainder, in 36 equal monthly installments on the first day of each month thereafter, subject to Mr. Gordon's continued employment.

Equity and Other Incentive Compensation Plans

Employee Bonus Plan

In connection with the offering, we will adopt an employee bonus plan, or the Employee Bonus Plan, under which eligible employees will be entitled to receive an annual cash bonus determined by the achievement of certain company and individual performance indicators that have been approved by our Compensation Committee and our Board for the relevant financial year.

All regular full-time and part-time employees who are employed by us on the date the bonus payout is made are eligible to receive a cash bonus pursuant to and on the terms of our Employee Bonus Plan. Employees who do not work a full financial year may be paid bonuses on a pro rata basis, at the discretion of our management. All bonus eligibility is subject to the determination of our management.

The determination of the bonus payable to any eligible employee is solely and completely within the discretion of our management, and there is no obligation on our management to award any bonus to any employee. Our Compensation Committee will approve the payment of any management-recommended bonus awards.

Severance Plan

On , 2018, we adopted an Executive Severance and Change in Control Plan, or the Severance Plan, under which eligible employees are entitled to receive certain severance benefits, including a lump sum payment, upon the termination of their employment with us, if such termination was (a) initiated by us and not for "cause" or "disability", each as defined under the Severance Plan, or because of death or (b) initiated by the employee for "good reason", as defined under the Severance Plan, or an Involuntary Termination.

Under the Severance Plan, in the event of an Involuntary Termination, we will pay and provide the following to the eligible employee within 60 days following such termination: an amount equal to the employee's annual salary as of the termination date multiplied by the applicable severance multiple, an amount equal to the excess of COBRA coverage over the monthly premium rate for our active employees multiplied by the applicable healthcare assistance multiple within 60 days following such termination, and post-termination nonqualified deferred compensation benefits, equity awards and employee welfare benefits pursuant to the terms of the respective plans and policies under which such benefits are provided, if any. In connection with an Involuntary Termination following a "change in control", as defined under the Severance Plan, we will pay and provide the following to the eligible employee: an amount equal to the sum of the employee's annual salary and target annual incentive (such amounts shall be determined as of the date of termination) multiplied by the applicable severance multiple within 60 days following such termination, an amount equal to the excess of COBRA coverage over the monthly premium rate for our active employees multiplied by the applicable healthcare assistance multiple within 60 days following such termination, and post-termination nonqualified deferred compensation benefits, equity awards and employee welfare benefits pursuant to the terms of the respective plans and policies under which such benefits are provided, if any. As a condition to the receipt of certain of these benefits under the Severance Plan, the employee must execute and not revoke a valid release of claims in the form provided by us.

The severance multiple and healthcare assistance multiple under the Severance Plan is are follows: six months for a termination date prior to or absent a change in control and nine months for a termination date during the two-year period following a change in control.

Generally, employees holding a position of vice president or a more senior position are eligible to be selected by our Compensation Committee to participate in the Severance Plan, except that an individual who is (a) party to an employment agreement with us that provides for payments upon his termination of employment, whether before or after a change in control, or (b) entitled to "deferred compensation" under Section 409A of the Code payable in installments shall not be eligible.

Stock Option Plan (2004)

The 2004 Plan was approved by our Board and our stockholders on November 6, 2004 and November 9, 2004, respectively. The 2004 Plan was most recently amended in June 2015 with the approval of both our Board and our stockholders. Under the 2004 Plan, we have reserved for issuance an aggregate of 9,394,365 shares of our common stock. The number of shares of common stock reserved for issuance is subject to adjustment in the event of any stock dividend, stock split, reverse stock split, combination, reclassification or other similar change in our capital structure.

The shares of common stock underlying awards that expire or are terminated or cancelled without having been fully exercised under the 2004 Plan are added back to the shares of common stock available for issuance under the 2004 Plan.

Our Board has acted as administrator of the 2004 Plan. The administrator has full power to select, from among the individuals eligible for awards, the individuals to whom awards will be granted, and to determine the specific terms and conditions of each award, subject to the provisions of the 2004 Plan. Persons eligible to participate in the 2004 Plan are our employees, officers, directors, consultants and advisors as selected from time to time by the administrator in its discretion.

The 2004 Plan permits the granting of (1) options to purchase common stock intended to qualify as incentive stock options under Section 422 of the Code, or ISOs, and (2) non-statutory stock options, or NSOs. Subject to certain exceptions set forth therein, the per share option exercise price of each option will be determined by the administrator but may not be less than 100% of the fair market value of the common stock on the date of grant, provided that the per share option exercise price of each option granted to an optionee that owns more than 10% of the common stock may not be less than 110% of the fair market value of the common stock on the date of grant. The term of each option will be fixed by the administrator. The administrator will determine at what time or times each option may be exercised.

The 2004 Plan provides that upon the occurrence of a "Transfer of Control," as defined in the 2004 Plan, except as otherwise provided in a particular option agreement, any unexercisable portion of an outstanding option under the 2004 Plan that would have otherwise become exercisable within 12 months following the effective time of the Transfer of Control shall become immediately exercisable as of a date prior to the Transfer of Control, which date shall be determined by the Board. Upon the occurrence of a Transfer of Control, each outstanding option under the 2004 Plan, to the extent not exercised prior to the Transfer of Control, shall terminate as of the effective time of the Transfer of Control, unless such option is assumed by the successor corporation (or parent thereof) or replaced with a comparable option to purchase shares of the common stock of the successor corporation (or parent thereof).

The Board may amend, suspend or terminate the 2004 Plan or any portion thereof at any time, subject to stockholder approval where such approval is required by applicable law. The Board may also amend, modify or terminate any outstanding option award, provided that no amendment to an award may adversely affect a participant's rights without his or her consent, unless such amendment is required to enable an option designated as an incentive stock option to qualify as an incentive stock option.

All options underlying the 2004 Plan were required to be granted within 10 years from November 6, 2004, the date the 2004 Plan was adopted by the Board. On November 6, 2014, the expiration date of the 2004 Plan was extended to November 6, 2016. As of April 30, 2018, options to purchase 8,909,413 shares of common stock were outstanding under the 2004 Plan. No future grants will be made under the 2004 Plan.

2016 Equity Incentive Plan

The 2016 Plan was adopted by the Board on May 18, 2016 and our stockholders on August 10, 2016 to succeed the 2004 Plan. The 2016 Plan was most recently amended on February 2, 2018. As a result, all options granted under the 2004 Plan remained subject to the terms of the 2004 Plan, but any shares of common stock that otherwise remained available for future grants under the 2004 Plan as of the effective date of the 2016 Plan ceased to be available under the 2004 Plan at such time.

Under the 2016 Plan, we have reserved for issuance an aggregate of 22,811,308 shares of our common stock. The number of shares of common stock reserved for issuance is subject to adjustment in the event of a capitalization event in which we are not paid any consideration including a merger, consolidation, reorganization, recapitalization, reincorporation, stock dividend, dividend in property other than cash, large nonrecurring cash dividend, stock split, reverse stock split, liquidating dividend, combination of shares, exchange of shares, change in corporate structure or any similar equity restructuring transaction, as that term is used in ASC 718.

The shares of common stock underlying awards that expire or are terminated, surrendered or cancelled without having been fully exercised or are forfeited or repurchased or result in shares of common stock not being issued under the 2016 Plan are added back to the shares of common stock available for issuance under the 2016 Plan. In addition, shares of common stock tendered to us by a participant to exercise an award are added back to the shares available for grant under the 2016 Plan.

Our Board has acted as administrator of the 2016 Plan. The administrator has full power to, among other things, select, from among the individuals eligible for awards, the individuals to whom awards will be granted, to accelerate the time at which a stock award may be exercised or vest, to amend the 2016 Plan and to determine the specific terms and conditions of each award, subject to the provisions of the 2016 Plan. Persons eligible to participate in the 2016 Plan are our employees, directors and consultants.

The 2016 Plan permits the granting of (1) options to purchase common stock intended to qualify as ISOs, (2) NSOs, (3) stock appreciation rights, (4) restricted stock awards, (5) restricted stock unit awards and (6) other stock awards. The per share option exercise price of each option will be determined by the administrator but may not be less than 100% of the fair market value of the common stock on the date of grant, provided that the per share option exercise price of each option granted to an optionee that owns more than 10% of the common stock may not be less than 110% of the fair market value of the common stock on the date of grant and such option grant may not be exercisable after the ten year anniversary of the date of grant. The term of each option will be fixed by the administrator. The administrator will determine at what time or times each option may be exercised.

The 2016 Plan provides that upon the occurrence of a "Corporate Transaction," as defined in the 2016 Plan, our Board may take one or more of the following actions as to some or all awards outstanding under the 2016 Plan: (i) provide that outstanding options awards will be assumed or substituted by the acquiring or successor corporation, (ii) arrange for the assignment of any reacquisition or repurchase rights held by us in respect of common stock issued pursuant to the stock award to the surviving corporation or acquiring corporation, (iii) accelerate the vesting, in whole or in part, of the stock award to a date prior to the effective time of such Corporate Transaction, (iv) arrange for the lapse, in whole or in part, of any reacquisition or repurchase rights held by us with respect to the stock award, (v) cancel or arrange for the cancellation of the stock award, to the extent not vested or not exercised prior to the effective time of the Corporate Transaction, in exchange for such cash consideration as the Board, in its sole discretion, may consider appropriate, or without the payment of consideration or (vi) make a payment, in such form as may be determined by the Board equal to the excess, if any, of (A) the value of the property the participant would have received upon the exercise of the stock award immediately prior to the effective time of the Corporate Transaction, over (B) any exercise price payable by such holder in connection with such exercise.

The Board may amend, suspend or terminate the 2016 Plan at any time, subject to stockholder approval where such approval is required by applicable law. Board may also amend, modify or terminate any outstanding award, provided that no amendment to an award may adversely affect a participant's rights without his or her consent.

Unless terminated by the Board, the 2016 Plan will terminate automatically on May 17, 2026. No stock awards may be granted under the 2016 Plan while the 2016 Plan is suspended or after it is terminated.

As of April 30, 2018, options to purchase 14,749,384 shares of common stock were outstanding under the 2016 Plan and 2,146,767 restricted stock units were outstanding under the 2016 Plan. Our Board has determined not to make any further awards under the 2016 Plan following the closing of this offering, at which time the 2018 Plan will become effective.

2018 Long-Term Incentive Plan

The Liquidia Technologies, Inc. 2018 Long-Term Incentive Plan, or the 2018 Plan, was approved by our Board on , 2018 and our stockholders on , 2018 and will become effective as of the date of the completion of this offering, or the Effective Date. No "Awards", as defined below, will be made under the 2004 Plan or the 2016 Plan on or after the Effective Date.

The 2018 Plan is designed to:

- promote the long-term financial interests and growth of our company and its subsidiaries by attracting and retaining directors and employees, which include management as well as other personnel;
- motivate management by means of growth-related incentives to achieve long-range goals; and
- further the alignment of the interests of participants and those of our stockholders, through opportunities for increased stock or stock-based ownership in our company.

The 2018 Plan will remain in effect, subject to the right of our Board or our Compensation Committee to amend or terminate the 2018 Plan at any time, until the earlier of (a) the earliest date as of which all Awards granted under the 2018 Plan have been satisfied in full or terminated and no shares of common stock approved for issuance under the 2018 Plan remain available to be granted under new Awards, or (b) . No Awards will be granted under the 2018 Plan after such termination date. Subject to other applicable provisions of the 2018 Plan, all Awards made under the 2018 Plan on or before , or such earlier termination of the 2018 Plan, shall remain in effect until such Awards have been satisfied or terminated in accordance with the 2018 Plan and the terms of such Awards.

Participation in the 2018 Plan

All of our officers, non-employee directors, employees and consultants are eligible to participate in the 2018 Plan.

Participation by Non-Employee Directors

Although our non-employee directors, including our independent directors, are not involved in the day-to-day running of our operations, they play an important role in furthering our business interests by contributing their experience and expertise. In particular, a number of our independent directors have substantial experience and expertise in pharmaceutical research and development and play an important role in helping us shape our business strategy. It is crucial for us to be able to attract, retain and incentivize such individuals.

It may not always be possible to quantify the services and contributions of our non-employee directors to our company, and accordingly, it may not always be possible to compensate them fully or appropriately by increasing their directors' fees or other cash payments. To that end, participation by non-employee directors in the 2018 Plan will allow us to acknowledge and reward their services and contributions to our company. In addition, we believe that opportunities for increased stock or stock-based ownership in our company will further align the interests of our non-employee directors with the interests of our stockholders.

Administration Plan

The 2018 Plan will be administered by the "Administrator", as defined below, provided that no director shall participate in any deliberation or decision in respect of any stock option, stock appreciation right, stock award, stock unit, performance share, performance unit and/or other stock-based award, each, an Award, and collectively, the Awards, to be granted to him or held by him.

For the purposes of the 2018 Plan, "Administrator" means our Compensation Committee, or such other committee(s) of director(s) duly appointed by our Board or our Compensation Committee to administer the 2018 Plan or delegated limited authority to perform administrative actions under the 2018 Plan, and having such powers as shall be specified by our Board or our Compensation Committee, provided, however, that at any time our Board may serve as the Administrator in lieu of or in addition to our Compensation Committee or such other committee(s) of director(s) to whom administrative authority has been delegated. With respect to any Award to which Section 16 of the Exchange Act applies, the Administrator shall consist of either our Board or a committee of our Board, which committee shall consist of three or more directors, each of whom is intended to be, to the extent required by Rule 16b-3 of the Exchange Act, a "non-employee director" as defined in Rule 16b-3 of the Exchange Act and an "independent director" to the extent required by the Nasdaq listing rules. Any member of the Administrator who does not meet the foregoing requirements shall abstain from any decision regarding an Award and shall not be considered a member of the Administrator to the extent required to comply with Rule 16b-3 of the Exchange Act.

As of , 2018, the Administrator is the Compensation Committee.

The Administrator has the authority, in its sole and absolute discretion, to grant Awards under the 2018 Plan to eligible individuals, and to take all other actions necessary or desirable to carry out the purpose and intent of the 2018 Plan. Further, the Administrator has the authority, in its sole and absolute discretion, subject to the terms and conditions of the 2018 Plan, to, among other things:

(a) determine the eligible individuals to whom, and the time or times at which, Awards shall be granted;

(b) determine the type of Awards to be granted to any eligible individual;

(c) determine the number of shares of common stock to be covered by or used for reference purposes for each Award or the value to be transferred pursuant to any Award; and

(d) determine the terms, conditions and restrictions applicable to each Award and any shares of common stock acquired pursuant thereto, including, without limitation, (i) the purchase price of any shares of common stock, (ii) the method of payment for shares of common stock purchased pursuant to any Award, (iii) the method for satisfying any tax withholding obligation arising in connection with any Award, including by the withholding or delivery of shares of common stock, (iv) the timing, terms and conditions of the exercisability, vesting or payout of any Award or any shares of common stock acquired pursuant thereto, (v) the performance goals applicable to any Award and the extent to which such performance goals have been attained, (vi) the time of the expiration of an Award, (vii) the effect of a participant's Termination of Service, as defined in the 2018 Plan, on any of the foregoing and (viii) all other terms, conditions and restrictions applicable to any Award or shares of common stock acquired pursuant thereto as the Administrator considers to be appropriate and not inconsistent with the terms of the 2018 Plan.

Size

A total of shares of our common stock will be initially authorized and reserved for issuance under the 2018 Plan. This reserve will automatically increase on January 1, 2019 and each subsequent anniversary through 2028, by an amount equal to the smaller of (a) 4% of the number of shares of common stock issued and outstanding on the immediately preceding December 31, or (b) an amount determined by the Board. This reserve will not be increased to include any shares issuable upon exercise of options granted under our 2016 Plan that expire or terminate without having been exercised in full.

Appropriate adjustments will be made in the number of authorized shares and other numerical limits in the Equity Plan and in outstanding awards to prevent dilution or enlargement of participants' rights in the event of a stock split or other change in our capital structure. Shares subject to awards which expire or are cancelled or forfeited will again become available for issuance under the Equity Plan.

Subject to adjustment as provided in the provision of the 2018 Plan pertaining to the occurrence of certain corporate transactions, the maximum number of shares of common stock that may be issued pursuant to stock options granted under the 2018 Plan that are intended to qualify as ISOs is .

Maximum Entitlements

The Administrator may establish compensation for directors who are not employees of our company or any of our Affiliates, as defined in the 2018 Plan, or the Non-Employee Directors, from time to time, provided that the sum of any cash compensation and the grant date fair value of Awards granted under the 2018 Plan to a non-employee director as compensation for services as a non-employee director during any calendar year may not exceed $500,000 for an annual grant, provided however that in a non-employee's director first year of service, compensation for services may not exceed $1,000,000. The Administrator may make exceptions to this limit for individual non-employee directors in extraordinary circumstances, as the Administrator may determine in its discretion, provided that the non-employee director receiving such additional compensation may not participate in the decision to award such compensation or in other compensation decisions involving non-employee director.

Awards

Awards may be granted individually or in tandem with other types of Awards, concurrently with or with respect to outstanding Awards. Participants are not required to pay for the application or acceptance of Awards.

Stock Options. The Administrator may, from time to time, grant to eligible individuals Awards of stock options.

Such stock options shall be exercisable at such time or times and subject to such terms and conditions as shall be determined by the Administrator; provided, however, that, Awards of stock options may not have a term in excess of ten years unless otherwise required by applicable law.

The exercise price per share subject to a stock option granted under the 2018 Plan shall not be less than the fair market value of one share on the date of grant of the stock option, except as provided under applicable law or with respect to stock options that are granted in substitution of similar types of awards of a company acquired by our company or with which our company combines (whether in connection with a corporate transaction, such as a merger, combination, consolidation or acquisition of property or stock, or otherwise) to preserve the intrinsic value of such awards.

Except as provided in the applicable award agreement or otherwise determined by the Administrator, to the extent stock options are not vested and exercisable, a participant's stock options shall be forfeited upon his Termination of Service.

Stock Appreciation Rights. The Administrator may, from time to time, grant to eligible individuals Awards of stock appreciation rights. A stock appreciation right entitles the participant to receive, subject to the provisions of the 2018 Plan and the applicable award agreement, a payment having an aggregate value equal to the product of (a) the excess of (i) the fair market value on the exercise date of one share over (ii) the base price per share specified in the award agreement, and (b) the number of shares of common stock specified by the stock appreciation right, or portion thereof, which is exercised. The base price per share specified in the applicable award agreement shall not be less than the lower of the fair market value on the date of grant or the exercise price of any tandem stock option to which the stock appreciation right is related, or with respect to stock appreciation rights that are granted in substitution of similar types of awards of a company acquired by our company or with which our company combines (whether in connection with a corporate transaction, such as a merger, combination, consolidation or acquisition of property or stock, or otherwise) such base price as is necessary to preserve the intrinsic value of such awards.

Stock appreciation rights shall be exercisable at such time or times and subject to such terms and conditions as shall be determined by the Administrator; provided, however, that stock appreciation rights granted under the 2018 Plan may not have a term in excess of ten years unless otherwise required by applicable law.

Except as provided in the applicable award agreement or otherwise determined by the Administrator, to the extent stock appreciation rights are not vested and exercisable, a participant's stock appreciation rights shall be forfeited upon his Termination of Service.

Stock Awards. The Administrator may, from time to time, grant to eligible individuals Awards of unrestricted stock or restricted stock, collectively, Stock Awards. For the purposes of the 2018 Plan, "Restricted Stock" means an Award of shares of common stock that may be subject to certain transferability and other restrictions and to a risk of forfeiture, including by reason of not satisfying certain performance goals.

Restricted Stock shall be subject to such vesting, restrictions on transferability and other restrictions, if any, and risk of forfeiture as the Administrator may impose at the date of grant or thereafter. The period during which such vesting or transferability and other restrictions and/or risk of forfeiture applies, or the Restriction Period, may lapse under such circumstances, including without limitation upon the attainment of performance goals, in such instalments, or otherwise, as the Administrator may determine. Subject to the provisions of the 2018 Plan and the applicable award agreement, during the Restriction Period, the Participant shall not be permitted to sell, assign, transfer, pledge or otherwise encumber Restricted Stock.

Except to the extent restricted under the applicable award agreement, a participant granted Restricted Stock shall have all of the rights of a stockholder including, without limitation, the right to vote. Cash dividends declared payable on of common stock shall be paid, with respect to outstanding Restricted Stock,

either as soon as practicable following the dividend payment date or deferred for payment to such later date as determined by the Administrator, and shall be paid in cash or as unrestricted shares of common stock having a fair market value equal to the amount of such dividends or may be reinvested in additional shares of Restricted Stock as determined by the Administrator; provided, however, that dividends declared payable on Restricted Stock granted as a Performance Award shall be held by our company and made subject to forfeiture at least until achievement of the applicable performance goal relating to such shares of Restricted Stock. Shares of common stock distributed in connection with a stock split or stock dividend, and other property distributed as a dividend, shall be subject to restrictions and a risk of forfeiture to the same extent as the Restricted Stock with respect to which such shares of common stock or other property have been distributed.

Except as provided in the applicable award agreement, upon termination of service during the applicable Restriction Period, Restricted Stock and any accrued but unpaid dividends that are at that time subject to restrictions shall be forfeited; provided that the Administrator may provide, by rule or regulation or in any Award Agreement, or may determine in any individual case, that restrictions or forfeiture conditions relating to Restricted Stock will be waived in whole or in part in the event of terminations resulting from specified causes, and the Administrator may in other cases waive in whole or in part the forfeiture of Restricted Stock.

Stock Units. The Administrator may, from time to time, grant to eligible individuals Awards of unrestricted stock units or Restricted Stock Units. For the purposes of the 2018 Plan, "Restricted Stock Unit" means a right granted to a participant to receive shares of common stock or cash at the end of a specified deferral period, which right may be conditioned on the satisfaction of certain requirements, including the satisfaction of certain performance goals.

Restricted Stock Units shall be subject to such vesting, risk of forfeiture and/or payment provisions as the Administrator may impose at the date of grant. The Restriction Period to which such vesting and/or risk of forfeiture applies may lapse under such circumstances, including without limitation upon the attainment of performance goals, in such instalments, or otherwise, as the Administrator may determine.

Until shares of common stock are issued to the participant in settlement of stock units, the participant shall not have any rights of a stockholder with respect to the stock units or the shares of common stock issuable thereunder. The Administrator may grant the participant the right to dividend equivalents on stock units, on a current, reinvested and/or restricted basis, subject to such terms as the Administrator may determine; provided, however, that dividend equivalents declared payable on stock units granted as a Performance Award shall rather than be paid on a current basis, be accrued and made subject to forfeiture at least until achievement of the applicable performance goal relating to such stock units.

Other Stock-Based Awards. The Administrator may, from time to time, grant to eligible individuals Awards in the form of Other Stock-Based Awards. For the purposes of the 2018 Plan, "Other Stock-Based Award" means an Award of shares of common stock or any other Award that is valued in whole or in part by reference to, or that is otherwise based upon, shares of common stock, including without limitation dividend equivalents and convertible debentures.

Adjustment Events

In the event of a merger, consolidation, rights offering, statutory share exchange or similar event affecting our company, each, a Corporate Event, or a stock dividend, stock split, reverse stock split, separation, spinoff, reorganization, extraordinary dividend of cash or other property, share combination or subdivision or recapitalization or similar event affecting the capital structure of our company, each, a Share Change, that occurs at any time after the Effective Date (including any such Corporate Event or Share Change that occurs after such adoption and coincident with or prior to the Effective Date), the Administrator shall make equitable and appropriate substitutions or proportionate adjustments to (a) the aggregate number and kind of shares of common stock or other securities on which Awards under the 2018 Plan may be granted to

eligible individuals, (b) the maximum number of shares of common stock or other securities with respect to which Awards may be granted during any one calendar year to any individual, (c) the maximum number of shares of common stock or other securities that may be issued with respect to ISOs granted under the 2018 Plan, (d) the number of shares of common stock or other securities covered by each outstanding Award and the exercise price, base price or other price per share, if any, and other relevant terms of each outstanding Award and (e) all other numerical limitations relating to Awards, whether contained in the 2018 Plan or in award agreements; provided, however, that any fractional shares resulting from any such adjustment shall be eliminated and that no such adjustment shall be made if as a result, the participant receives a benefit that a stockholder does not receive and any adjustment (except in relation to a capitalization issue) must be confirmed in writing by the auditors of our company (acting as experts and not as arbitrators) to be, in their opinion, fair and reasonable.

In the case of Corporate Events, the Administrator may make such other adjustments to outstanding Awards as it determines to be appropriate and desirable, which adjustments may include, without limitation, (a) the cancellation of outstanding Awards in exchange for payments of cash, securities or other property or a combination thereof having an aggregate value equal to the value of such Awards, as determined by the Administrator in its sole discretion (it being understood that in the case of a Corporate Event with respect to which stockholders receive consideration other than publicly traded equity securities of the ultimate surviving entity, any such determination by the Administrator that the value of a stock option or stock appreciation right shall for this purpose be deemed to equal the excess, if any, of the value of the consideration being paid for each share of common stock pursuant to such Corporate Event over the exercise price or base price of such stock option or stock appreciation right shall conclusively be deemed valid and that any stock option or stock appreciation right may be cancelled for no consideration upon a Corporate Event if its exercise price or base price equals or exceeds the value of the consideration being paid for each share of common stock pursuant to such Corporate Event), (b) the substitution of securities or other property (including, without limitation, cash or other securities of our company and securities of entities other than our company) for the shares of common stock subject to outstanding Awards and (c) the substitution of equivalent awards, as determined in the sole discretion of the Administrator, of the surviving or successor entity or a parent thereof; provided, however, that no such adjustment shall be made if as a result, the participant receives a benefit that a stockholder does not receive and any adjustment (except in relation to a capitalization issue) must be confirmed in writing by the auditors of our company (acting as experts and not as arbitrators) to be, in their opinion, fair and reasonable.

Change in Control

In the event of a change in control, as defined in the 2018 Plan, of our company, outstanding awards will terminate upon the effective time of the change in control unless provision is made for the continuation, assumption or substitution of awards by the surviving or successor entity or its parent. Unless an award agreement says otherwise, the following will occur with respect to awards that terminate in connection with a change in control of our company:

- stock options and stock appreciation rights will become fully exercisable and holders of these awards will be permitted immediately before the change in control to exercise them;
- restricted stock and stock units with time-based vesting (i.e., not subject to achievement of performance goals) will become fully vested immediately before the change in control, and stock units will be settled as promptly as is practicable in accordance with applicable law; and
- performance shares and units that vest based on the achievement of performance goals will vest as if the performance goal for the unexpired performance period had been achieved at the target level; and the performance units will be settled as promptly as is practicable in accordance with applicable law.

2018 Plan Amendments

Our Board or our Compensation Committee may amend, alter or discontinue the 2018 Plan, but no amendment, alteration or discontinuation shall be made which would materially impair the rights of a

participant with respect to a previously granted Award without such participant's consent, except such an amendment made to comply with applicable law or rule of any securities exchange or market on which our shares of common stock are listed or admitted for trading or to prevent adverse tax or accounting consequences to our company or the participant.

Our Board or our Compensation Committee may, at any time, modify and/or alter any or all of the provisions of the 2018 Plan, except that no modification or alternation of any provision shall be made to the advantage of participants except with the prior approval of stockholders a stockholders' meeting to the extent such amendment requires stockholders' approval under the applicable provisions of the applicable listing exchange rule, including but not limited to (a) expanding the eligibility for participation in the 2018 Plan, (b) increasing the number of shares of common stock which may be issued under the 2018 Plan or to a participant, (c) eliminating or modifying the prohibition set forth in Section 7(f) of the 2018 Plan on repricing of stock options and stock appreciation rights, (d) lengthening the maximum term or lowering the minimum exercise price or base price permitted for stock options and stock appreciation rights, (e) modifying the prohibition on the issuance of reload or replenishment options or (f) materially increasing the benefits accruing to participants under the 2018 Plan.

Amendment of Awards

The Administrator may unilaterally amend the terms of any Award theretofore granted, but no such amendment shall materially impair the rights of any participant with respect to an Award without the participant's consent, except such an amendment made to cause the 2018 Plan or Awards thereunder to comply with applicable law, applicable rule of any securities exchange on which our shares of common stock are listed or admitted for trading, or to prevent adverse tax or accounting consequences for the participant or our company or any of our affiliates. For purposes of the foregoing sentence, an amendment to an Award that results in a change in the tax consequences of the Award to the participant shall not be considered to be a material impairment of the rights of the participant and shall not require the participant's consent.

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

The following is a description of transactions since January 1, 2015, to which we have been a party, in which the amount involved exceeds or will exceed $120,000 and in which any of our directors, executive officers or holders of more than 5% of our capital stock, or an affiliate or immediate family member thereof, had or will have a direct or indirect material interest.

Series D Preferred Stock Financing

On February 2, 2018, pursuant to a Series D Preferred Stock Purchase Agreement, we issued and sold, at a price per share equal to $0.59808, shares of our Series D preferred stock to Canaan VIII L.P., or Canaan, Morningside Venture Investments Limited, or Morningside, New Enterprise Associates, or NEA, Xeraya LT Ltd, or Xeraya, and Robert Lippe, our Chief Operations Officer. The following table sets forth the aggregate number of shares of Series D preferred stock issued to our related parties in this offering:

		Aggregate Purchase Price	
Participants	Shares of Series D Preferred Stock	Cash ($)	Conversion of Promissory Note ($)
Canaan[1]	15,887,155	7,500,000	2,001,790
Morningside[2]	1,849,490	—	1,106,143
NEA[3]	16,502,833	7,500,000	2,370,015
Xeraya[4]	17,445,780	—	10,433,973
Robert Lippe	91,814	—	54,912

(1) Dr. Bloch, a member of our Board, is a General Partner at Canaan, which is a beneficial holder of more than 5% of our capital stock.

(2) Dr. Cheng, a member of our Board, is an Investment Partner at Morningside Technology Advisory, LLC, an affiliate of Morningside, which is a beneficial holder of more than 5% of our capital stock.

(3) Mr. Mathers, a member of our Board, is a partner at New Enterprise Associates, Inc., an affiliate of NEA, which is a beneficial holder of more than 5% of our capital stock.

(4) Mr. Rushton, a member of our Board, is a partner at Xeraya Capital Labuan Ltd., an affiliate of Xeraya, which is a beneficial holder of more than 5% of our capital stock.

Issuance of Unsecured Subordinated Convertible Promissory Notes and Warrants

On January 9, 2017, pursuant to a Note Purchase Agreement, as amended, we issued unsecured subordinated convertible promissory notes, or the Insider Notes, each accruing simple interest at a rate of 8% per year, to Canaan, Morningside, NEA and Robert Lippe in the principal amounts set forth in the following table:

Participants	Principal Amounts of Subordinated Convertible Promissory Notes ($)	Warrants to Purchase Shares of Common Stock[(1)]
Canaan	1,845,271	687,497
Morningside	1,019,654	379,894
NEA	2,184,704	813,960
Robert Lippe	50,927	18,973

(1) Represents the number of shares of common stock underlying warrants which will be exercisable following the automatic conversion of all outstanding shares of preferred stock, including the Series D preferred stock issued in February 2018, into common stock upon completion of this offering. The exercise price per share underlying the warrants is $0.001.

On July 17, 2017, pursuant to an additional Note Purchase Agreement, or the Xeraya NPA, we issued an unsecured subordinated convertible promissory note to Xeraya in the principal amount of $10 million, or the Xeraya Note, accruing simple interest at a rate of 8% per year. In connection with such agreement, we appointed Jason Rushton, a partner at Xeraya Capital Labuan Ltd, an affiliate of Xeraya, to our Board, effective July 17, 2017.

On February 2, 2018, each of the Insider Notes and the Xeraya Note converted into shares of our Series D preferred stock pursuant to the Series D Preferred Stock Purchase Agreement at the rate of one share for each $0.59808 in principal and accrued interest outstanding under the notes.

Certain Transactions Involving Envisia Therapeutics Inc.

In 2013, we formed Envisia and granted it an exclusive, worldwide, fully paid license to develop therapies using our PRINT technology in specified fields, including ophthalmology, dermatology, articular and otic, or the Envisia License, in exchange for an aggregate of 1,000,000 shares of Envisia common stock. Certain of our significant stockholders purchased shares of Envisia Series A-1 preferred stock in 2013 in a transaction contingent upon the execution of the Envisia License. Each share of preferred stock was initially convertible into one share of common stock. The following table summarizes the ownership of Envisia common and

preferred stock following this transaction, including the relative percentage ownership of the stock on an as-converted basis:

Name	Shares of Common Stock	Shares of Series A Preferred Stock	Aggregate Purchase Price ($)	Ownership Percentage (%)
Liquidia	1,000,000	—	—(1)	11.6
Canaan	—	2,360,739	9,584,600	27.4
Morningside	—	450,936	1,830,800	5.2
NEA	—	2,360,739	9,584,600	27.4
Other stockholders(2)	—	983,484	3,992,968	28.4

(1) We received an aggregate of 1,000,000 shares of Envisia common stock as consideration for the Envisia License.

(2) Consists of Envisia stockholders who were not our related parties.

We understand that Canaan, Morningside and NEA participated in subsequent equity financings with Envisia.

In May 2015, we repurchased the Envisia License with respect to the dermatology and articular fields in exchange for 50,000 shares of the Envisia common stock we held. In March 2017, we repurchased the Envisia License with respect to the otic field, along with other intellectual property rights, in exchange for 75,000 shares of the Envisia common stock we held.

From November 2013 to June 2016, we funded expenses of Envisia related to its facilities, intellectual property and manufacturing under a shared services agreement, totaling $873,474, $614,893 and $0 for the years ended December 31, 2015, 2016 and 2017, respectively. We also provided management services worth $1.5 million to Envisia during the year ended December 31, 2015. In May 2016, we converted Envisia's unpaid expenses under the shared services agreement into a promissory note in the principal amount of $985,594, which carried interest at an annual rate of 5.0% and had a stated maturity date of December 31, 2016. Envisia repaid the promissory note in full in August 2016. In October 2017, we entered into a mutual release agreement with Envisia related to intellectual property services under our shared services agreement, pursuant to which we waived $121,473 in fees owed by Envisia.

In October 2017, Aerie purchased substantially all of the assets of Envisia for $24.8 million, comprised of $10.5 million in cash and 263,146 shares of Aerie common stock valued at $14.3 million. In addition, Aerie agreed to make potential milestone payments to Envisia of up to an aggregate of $45.0 million, contingent upon achievement of certain product regulatory approvals. To the extent funds are to be distributed by Envisia, such distributions will be first allocated to the Envisia preferred stockholders in light of their liquidation preferences. After such liquidation preferences are satisfied, we do not currently expect that we will receive any portion of the proceeds of this transaction as a holder of Envisia common stock. We are not aware of any plans for distributions to Envisia's stockholders.

Investors' Rights Agreement

We have entered into the Seventh Amended and Restated Investors' Rights Agreement, or the IRA, dated as of February 2, 2018. The IRA contains information rights and registration rights, among other things, for certain holders of our capital stock. Pursuant to the terms of the agreement, each of these rights, with the exception of the registration rights, will terminate upon the closing of this offering, except for the registration rights as more fully described below in "Description of Capital Stock — Registration Rights."

Indemnification Agreements and Directors' and Officers' Liability Insurance

We have entered into indemnification agreements with each of our directors and executive officers. These agreements, among other things, require us to indemnify each director and executive officer to the fullest extent permitted by Delaware law, including indemnification of expenses such as attorneys' fees, judgments, penalties fines and settlement amounts incurred by the director or executive officer in any action or proceeding, including any action or proceeding by or in right of us, arising out of the person's services as a director or executive officer.

Policies and Procedures for Related Party Transactions

Our Board has adopted a written related person transaction policy, to be effective upon the consummation of this offering, setting forth the policies and procedures for the review and approval or ratification of related person transactions. This policy will cover, with certain exceptions set forth in Item 404 of Regulation S-K under the Securities Act, any transaction, arrangement or relationship, or any series of similar transactions, arrangements or relationships in which we were or are to be a participant, where the amount involved exceeds $120,000 and a related person had or will have a direct or indirect material interest, including, without limitation, purchases of goods or services by or from the related person or entities in which the related person has a material interest, indebtedness, guarantees of indebtedness and employment by us of a related person. In reviewing and approving any such transactions, our Audit Committee, but only those independent directors who are disinterested, will be tasked to consider all relevant facts and circumstances, including, but not limited to, whether the transaction is on terms comparable to those that could be obtained in an arm's length transaction with an unrelated third party and the extent of the related person's interest in the transaction. All of the transactions described in this section occurred prior to the adoption of this policy.

PRINCIPAL STOCKHOLDERS

The following table sets forth information with respect to the beneficial ownership of our common stock as of April 30, 2018, and as adjusted to reflect the sale of our common stock offered by us in this offering, for:

- each of our named executive officers;
- each of our directors;
- all of our current directors and executive officers as a group; and
- each person, or group of affiliated persons, known by us to be the beneficial owner of more than 5% of our outstanding shares of common stock.

We have determined beneficial ownership in accordance with the rules of the SEC, which generally means that a person has beneficial ownership of a security if he or she possesses sole or shared voting or investment power of that security, including options or warrants that are currently exercisable or exercisable within 60 days of April 30, 2018. In computing the number of shares beneficially owned by an individual or entity and the percentage ownership of that person, shares of common stock subject to options, convertible securities or other rights, held by such person that are currently exercisable or will become exercisable within 60 days of April 30, 2018, are considered outstanding. We did not, however, deem such shares outstanding for the purpose of computing the percentage ownership of any other person. Unless otherwise indicated, to our knowledge, the persons and entities named in the table below have sole voting and sole investment power with respect to all shares that they beneficially own, subject to community property laws where applicable. The information in the table below does not necessarily indicate beneficial ownership for any other purpose, including for purposes of Sections 13(d) and 13(g) of the Securities Act.

We have based our calculation of the percentage of beneficial ownership prior to this offering on 177,874,290 shares of common stock outstanding as of April 30, 2018, after giving effect to the automatic conversion of all of our outstanding preferred stock, including the Series D preferred stock issued in February 2018, and non-voting common stock into common stock upon the closing of this offering.

Unless otherwise indicated, the address of each beneficial owner listed in the table below is c/o Liquidia Technologies, Inc., 419 Davis Drive, Suite 100, Morrisville, North Carolina 27560.

Name of Beneficial Owner	Number of Shares Beneficially Owned Prior to Offering	Percentage of Shares Beneficially Owned	
		Before Offering	After Offering[1]
5% Stockholders:			
New Enterprise Associates 12, Limited Partnership[2]	33,469,253	18.7%	%
Canaan VIII L.P.[3]	31,583,070	17.7%	%
Xeraya LT Ltd[4]	17,445,780	9.8%	%
Bill & Melinda Gates Foundation[5]	13,412,616	7.5%	%
Morningside Venture Investments Limited[6]	9,680,849	5.4%	%
Named Executive Officers and Directors:			
Neal Fowler[7]	3,953,224	2.2%	%
Timothy Albury[8]	877,451	*	*
Robert Lippe[9]	673,287	*	*
Seth Rudnick[10]	815,266	*	*
Stephen Bloch	—	—	—
Edward Mathers	—	—	—
Isaac Cheng	—	—	—
Ralph Snyderman[11]	485,857	*	*
Arthur Kirsch[12]	59,375	*	*
Jason Rushton	—	—	—
Raman Singh	—	—	—
All current executive officers and directors as a group (14 persons)[13]	7,828,148	4.2%	%

* Represents ownership of less than 1.0%.

(1) Assumes no exercise of the underwriters' option to purchase additional shares of common stock.

(2) Consists of (i) 187,121 shares of common stock, (ii) 32,468,172 shares of common stock issuable upon the automatic conversion of outstanding shares of preferred stock held by NEA and NEA Ventures 2006 Limited Partnership, or NEA 2006, an affiliate of NEA, and (iii) 813,960 shares of common stock issuable upon the conversion of an outstanding warrant. The securities held by NEA are indirectly held by (x) NEA Partners 12, Limited Partnership, or NEA Partners 12, the sole general partner of NEA, (y) NEA 12 GP, LLC, or NEA 12 LLC, the sole general partners of NEA Partners 12, and each of the individual managers of NEA 12 LLC. The individual managers of NEA 12 LLC, or the NEA 12 Managers, are M. James Barrett, Peter J. Barris, Forest Baskett, Patrick J. Kerins and Scott D. Sandell. The shares directly held by NEA 2006 are indirectly held by Karen P. Welsh, the general partner of NEA 2006. NEA, NEA Partners 12, NEA 12 LLC and the NEA 12 Managers share voting and dispositive power with regard to our securities directly held by NEA. Karen P. Welsh, the general partner of NEA 2006, has voting and dispositive power with regard to our securities directly held by NEA 2006. All indirect holders of the above referenced securities disclaim beneficial ownership of all applicable securities, except to the extent of their actual pecuniary interest therein. The address of NEA is 1954 Greenspring Drive, Suite 600, Timonium, MD 21093.

(3) Consists of (i) 45,419 shares of common stock, (ii) 30,850,154 shares of common stock issuable upon the automatic conversion of outstanding shares of preferred stock and (iii) 687,497 shares of common stock issuable upon the conversion of an outstanding warrant. Canaan Partners VIII LLC is the general partner of Canaan VIII L.P. and has sole investment and voting power over the shares held by Canaan VIII L.P. Brenton K. Ahrens, John V. Balen, Stephen M. Bloch, Wende S. Hutton, Maha S. Ibrahim, Deepak Kamra, Guy M. Russo and Eric A. Young are the managing members of Canaan Partners VIII LLC. No one individual controls Canaan Partners VIII LLC and, therefore, none of the managing members of Canaan Partners VIII LLC individually has investment or voting power with respect to the shares held by Canaan VIII L.P. Investment and voting decisions with respect to the shares held by Canaan VIII L.P. are made by the managing members of Canaan Partners VIII LLC, collectively. Dr. Bloch, a member of our Board, is a managing member of Canaan Partners VIII LLC.

Neither Dr. Bloch nor the other members or managers of Canaan Partners VIII LLC are deemed to indirectly beneficially own the shares beneficially owned by Canaan. The address of Canaan is 285 Riverside Avenue, Suite 250, Westport, CT 06880.

(4) Consists of 17,445,780 shares of common stock issuable upon the automatic conversion of outstanding shares of Series D preferred stock. All shares are held by Xeraya. Fares Zahir, a director of Xeraya, has sole voting and dispositive power with respect to the shares held by Xeraya. Mr. Zahir disclaims beneficial ownership of the shares held by Xeraya, except to the extent of his pecuniary interest therein, if any. The principal address of Xeraya is Lot 26.03-26.08, Level 26, GTower, No. 199, Jalan Tun Razak, 50400, Kuala Lumpur, Malaysia.

(5) Consists of 13,412,616 shares of common stock issuable upon the automatic conversion of outstanding shares of Series C-1 preferred stock. For purposes of Rule 13d-3 under the Exchange Act, all shares beneficially owned by the Bill & Melinda Gates Foundation may be deemed to be beneficially owned by William H. Gates III and Melinda French Gates as Co-Trustees of the Bill & Melinda Gates Foundation. The principal address of the Bill & Melinda Gates Foundation is 1432 Elliot Avenue West, Seattle, WA 98119.

(6) Consists of (i) 9,300,955 shares of common stock issuable upon the automatic conversion of outstanding shares of preferred stock, and (ii) 379,894 shares of common stock issuable upon the conversion of an outstanding warrant. All shares are held by Morningside. Raymond Tang, Louise Garbarino, Peter Stuart Allenby Edwards and Jill Franklin are directors of Morningside, and may be deemed to have joint voting and dispositive power with respect to the shares held by Morningside. Each of Mr. Tang, Ms. Garbarino, Mr. Edwards and Ms. Franklin disclaim beneficial ownership of the shares held by Morningside, except to the extent of his or her pecuniary interest therein, if any. The address of Morningside is 2nd Floor, Le Prince de Galles, 3-5 Avenue des Citronniers, MC 98000, Monaco.

(7) Consists of (i) 500,000 shares of common stock and (ii) 3,453,224 shares of common stock underlying outstanding options which will have vested within 60 days of April 30, 2018.

(8) Consists of (i) 474,967 shares of common stock and (ii) 402,484 shares of common stock underlying outstanding options which will have vested within 60 days of April 30, 2018.

(9) Consists of (i) 203,125 shares of common stock, (ii) 359,375 shares of common stock underlying an outstanding option which will have vested within 60 days of April 30, 2018, (iii) 18,973 shares of common stock issuable upon the conversion of an outstanding warrant and (iv) 91,814 shares of common stock issuable upon the conversion of outstanding shares of Series D preferred stock.

(10) Consists of (i) an aggregate of 406,250 shares of common stock held by Dr. Rudnick and the Carolyn F. Rudnick, and successors, Trustee Seth A. Rudnick Irrevocable GST Trust u/a 3/1/2014 which is managed by Dr. Rudnick's wife for the benefit of his wife and children, and (ii) 409,016 shares of common stock underlying outstanding options which will have vested within 60 days of April 30, 2018.

(11) Consists of (i) 418,362 shares of common stock and (ii) 67,495 shares of common stock underlying outstanding options which will have vested within 60 days of April 30, 2018.

(12) Consists of 59,375 shares of common stock underlying an outstanding option which will have vested within 60 days of April 30, 2018.

(13) Consists of an aggregate of (i) 2,062,704 shares of common stock, (ii) 5,644,483 shares of common stock underlying outstanding options which will have vested within 60 days of April 30, 2018, (iii) 18,973 shares of common stock issuable upon the conversion of an outstanding warrant, (iv) 10,174 shares of common stock issuable upon the conversion of outstanding shares of non-voting common stock, and (v) 91,814 shares of common stock issuable upon the conversion of outstanding shares of Series D preferred stock, held by eight executive officers and directors.

DESCRIPTION OF CAPITAL STOCK

The following description summarizes important terms of our capital stock. For a complete description, you should refer to our amended and restated certificate of incorporation and amended and restated bylaws, forms of which have been filed as exhibits to the registration statement of which this prospectus is a part, as well as the relevant portions of the Delaware General Corporation Law, or the DGCL. References to our amended and restated certificate of incorporation and amended and restated bylaws are to our amended and restated certificate of incorporation and our amended and restated bylaws, respectively, each of which will become effective upon completion of this offering.

General

The following is a summary of our capital stock and certain provisions of our amended and restated certificate of incorporation and amended and restated bylaws, which will become effective immediately prior to the closing of this offering. This summary does not purport to be complete and is qualified in its entirety by the provisions of our amended and restated certificate of incorporation and amended and restated bylaws, copies of which have been filed as exhibits to the registration statement of which this prospectus forms a part.

Following the closing of this offering, our authorized capital stock will consist of shares of common stock and shares of preferred stock.

Common Stock

As of April 30, 2018, there were 10,141,203 shares of Class A voting common stock outstanding held of record by 84 stockholders; 330,664 shares of Class B non-voting common stock outstanding held of record by nine stockholders; 1,974,430 shares of Series A preferred stock outstanding held of record by 11 stockholders; 1,834,862 shares of Series A-1 preferred stock outstanding held of record by nine stockholders; 4,496,908 shares of Series B preferred stock outstanding held of record by six stockholders; 17,102,578 shares of Series C preferred stock outstanding held of record by ten stockholders, 17,556,178 shares of Series C-1 preferred stock outstanding held of record by three stockholders and 91,147,482 shares of Series D preferred stock outstanding held of record by 31 stockholders. There will be shares of a single class of voting common stock outstanding following the closing of this offering, assuming no exercise of the underwriters' option to purchase additional shares and assuming no exercise of outstanding options and warrants and no delivery of any shares of common stock underlying outstanding restricted stock units. Such number of outstanding shares of common stock also reflects the conversion of all outstanding shares of preferred stock and Class B non-voting common stock into an aggregate of shares of common stock upon the consummation of this offering.

The holders of common stock will be entitled to one vote per share on all matters to be voted upon by the stockholders. The holders of common stock will be entitled to receive ratably those dividends, if any, that may be declared from time to time by our Board out of funds legally available, subject to preferences that may be applicable to preferred stock, if any, then outstanding. In the event of a liquidation, dissolution or winding up of our company, the holders of common stock will be entitled to share ratably in all assets remaining after payment of liabilities, subject to prior distribution rights of preferred stock, if any, then outstanding. The common stock will have no preemptive or conversion rights or other subscription rights. There are no redemption or sinking fund provisions applicable to the common stock. All outstanding shares of common stock are fully paid and non-assessable.

Preferred Stock

Upon the closing of this offering, all outstanding shares of our preferred stock will be converted into an aggregate of shares of our common stock in accordance with our amended and restated certificate of incorporation. After the closing of this offering, there will be no outstanding shares of preferred stock.

Following this conversion and the closing of this offering, our Board will be authorized to issue preferred stock in one or more series, to establish the number of shares to be included in each such series and to fix the designation, powers, preferences and rights of these shares and any qualifications, limitations or restrictions thereof. The issuance of preferred stock may have the effect of delaying, deferring or preventing a change in control of our company without further action by the stockholders and may adversely affect the voting and other rights of the holders of common stock. The issuance of preferred stock with voting and conversion rights may adversely affect the voting power of the holders of common stock, including the loss of voting control to others. At present, we have no plans to issue any of the preferred stock.

Warrants

As of April 30, 2018, we had outstanding warrants to purchase an aggregate of 3,698,128 shares of our Series C-1 preferred stock at an exercise price of $0.001 per share. These warrants will continue to be exercisable for an aggregate of 4,394,914 shares of common stock following the closing of this offering (after the automatic conversion of all outstanding shares of our preferred stock into shares of common stock upon the closing of this offering), at an exercise price of $0.001 per share and expire on December 31, 2026.

Registration Rights

We entered into a Seventh Amended and Restated Investors' Rights Agreement, or IRA, on February 2, 2018 with our largest stockholders. Subject to the terms of this agreement, Holders, as defined in the Seventh Amended and Restated IRA, of shares having registration rights, or Registrable Securities, as defined in the Seventh Amended and Restated IRA, can demand that we file a registration statement or request that their shares be covered by a registration statement that we are otherwise filing, until the earliest to occur of: (i) five years following the consummation of this offering, (ii) as to any Holder, such earlier time after this offering at which such Holder can sell all Registrable Securities held by such Holder (together with any affiliate of the Holder with whom such Holder must aggregate its sales under Rule 144) in a single three (3)-month period without registration in compliance with Rule 144 of the Securities Act or (iii) after the consummation of a "Liquidation Event," as defined in the Seventh Amended and Restated IRA.

Demand Registration Rights. At any time after six months following the closing of this offering, subject to certain exceptions set forth in the Seventh Amended and Restated IRA, if the Holders of at least a majority of the common stock issuable or issued upon conversion of the Series C, Series C-1 and Series D preferred stock, or the Required Holders, demand that we file a registration statement covering the registration of Registrable Securities with an anticipated aggregate offering price of at least $10 million, we are required to use all commercially reasonable efforts to effect, as soon as practicable, the registration under the Securities Act of all Registrable Securities requested to be registered.

Form S-3 Registration Rights. If we receive from the Holders of Registrable Securities a written request that we effect a registration on Form S-3, we are required to provide written notice of the proposed registration to all other Holders and use all commercially reasonable efforts to effect the registration of such shares on Form S-3; provided, however, that such Form S-3 registration right is subject to a number of exceptions, such as us being eligible to use Form S-3 at the time such Form S-3 registration request is made, the proposed sale of Registrable Securities to be registered on Form S-3 having an aggregate price to the public (net of any underwriters' discounts or commissions) of at least $5 million and us not being required to file more than two registration statements on Form S-3 in a 12-month period. Furthermore, we

have the ability to delay the filing of a registration statement under specified conditions, such as for a period of time following the effective date of a prior registration statement, if our Board deems it detrimental to us and our stockholders to delay the filing. Such postponements cannot exceed 90 days during any 12-month period and cannot be made more than once in any 12-month period.

Piggyback Registration Rights. If we propose to register any of our securities under the Securities Act in connection with the public offering of such securities, we are required to, at such time, promptly give each Holder party to the Seventh Amended and Restated IRA written notice of such registration. Upon the written request of each such Holder given within 20 days after receipt of our registration notice, we are required to use all commercially reasonable efforts to cause to be registered under the Securities Act all of the Registrable Securities that each holder requests to be registered. In connection with any such offering, we are not required to include any of the Holders' securities in such underwriting unless they accept the terms of the underwriting as agreed between us and the underwriters selected by us and enter into an underwriting agreement in customary form with such underwriters, and then only in such quantity as the underwriters determine in their sole discretion will not jeopardize the success of the offering by us. If marketing factors require a limitation of the number of shares to be underwritten, then the number of shares that may be included in the underwriting will be allocated, first, to us; second, to the Holders other than the Common Holders on a pro rata basis based on the total number of Registrable Securities held by such Holders; third, to the Common Holders on a pro rata basis based on the total number of Registrable Securities held by the Common Holders; and fourth, to any stockholder other than a Holder and/or Common Holder on a pro rata basis.

Expenses of Registration. We will pay all expenses, other than underwriting discounts and commissions, related to any demand, Form S-3 or piggyback registration, including without limitation all registration, filing and qualification fees, printers' and accounting fees, fees and disbursements of counsel for us and the reasonable fees and disbursements of one counsel for the selling Holders, not to exceed $50,000.

Indemnification. The Seventh Amended and Restated IRA contains customary cross-indemnification provisions under which we are obligated to indemnify the selling stockholders in the event of material misstatements or omissions or other "Violation," as defined in the Seventh Amended and Restated IRA, in the registration statement attributable to us, and they are obligated to indemnify us for material misstatements or omissions or other Violation attributable to them.

Termination of Registration Rights. All registration rights granted under the IRA will terminate on the fifth anniversary of the completion of this offering.

Anti-Takeover Effects of Our Charter and Bylaws and Delaware Law

Some provisions of Delaware law and our amended and restated certificate of incorporation and amended and restated bylaws, to be effective following the closing of this offering, could make the following transactions more difficult:

- acquisition of our company by means of a tender offer, a proxy contest or otherwise; and
- removal of our incumbent officers and directors.

These provisions, summarized below, are expected to discourage and prevent coercive takeover practices and inadequate takeover bids. These provisions are designed to encourage persons seeking to acquire control of our company to negotiate first with our board. They are also intended to provide our management with the flexibility to enhance the likelihood of continuity and stability if our board determines that a takeover is not in the best interests of our stockholders. These provisions, however, could have the effect of discouraging attempts to acquire us, which could deprive our stockholders of opportunities to sell their shares of common stock at prices higher than prevailing market prices. We believe that the benefits of these provisions, including increased protection of our potential ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure our company, outweigh the disadvantages of

discouraging takeover proposals, because negotiation of takeover proposals could result in an improvement of their terms.

Election and Removal of Directors

Our amended and restated certificate of incorporation and our amended and restated bylaws contain provisions that establish specific procedures for appointing and removing members of our board. Under our amended and restated certificate of incorporation and amended and restated bylaws, to be effective following the closing of this offering, our board will consist of three classes of directors: Class I, Class II and Class III. A nominee for director shall be elected to our board if the votes cast for such nominee's election exceed the votes cast against such nominee's election. Each director will serve a three-year term and will stand for election upon the third anniversary of the annual meeting at which such director was elected. In addition, our amended and restated certificate of incorporation and amended and restated bylaws will provide that vacancies and newly created directorships on our board may be filled only by a majority of the directors then serving on our board. Under our amended and restated certificate of incorporation, directors may be removed by the stockholders only by the affirmative vote of the holders of at least a majority of the voting power of all of the then-outstanding shares of our capital stock entitled to vote generally in the election of directors, voting together as a single class.

Authorized but Unissued Shares. The authorized but unissued shares of our common stock and our preferred stock will be available for future issuance without any further vote or action by our stockholders. These additional shares may be utilized for a variety of corporate purposes, including future public offerings to raise additional capital, corporate acquisitions and employee benefit plans. The existence of authorized but unissued shares of our common stock and our preferred stock could render more difficult or discourage an attempt to obtain control over us by means of a proxy contest, changes in our management, tender offer, merger or otherwise. In particular, the authorization of undesignated preferred stock makes it possible for our board to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to change control of our company.

Stockholder Action; Advance Notification of Stockholder Nominations and Proposals. Our amended and restated certificate of incorporation and amended and restated bylaws will require that any action required or permitted to be taken by our stockholders must be effected at a duly called annual or special meeting of stockholders and will eliminate the right of stockholders to act by written consent without a meeting. In addition, our amended and restated bylaws will provide that candidates for director may be nominated and other business brought before an annual meeting only by the board or by a stockholder who gives written notice to us no later than 90 days prior to nor earlier than 120 days prior to the first anniversary of the last annual meeting of stockholders. These provisions may have the effect of deterring unsolicited offers to acquire our company or delaying changes in our management, which could depress the market price of our common stock.

Special Stockholder Meetings. Under our amended and restated certificate of incorporation and amended and restated bylaws, only the board, the Chairman of our board or our Chief Executive Officer may call special meetings of stockholders.

Delaware Anti-Takeover Law. After this offering, we will be subject to Section 203 of the DGCL, which is an anti-takeover law. In general, Section 203 prohibits a publicly held Delaware corporation from engaging in a business combination with an interested stockholder for a period of three years following the date that the person became an interested stockholder, unless the business combination or the transaction in which the person became an interested stockholder is approved in a prescribed manner. Generally, a business combination includes a merger, asset or stock sale, or another transaction resulting in a financial benefit to the interested stockholder. Generally, an interested stockholder is a person who, together with affiliates and associates, owns 15% or more of the corporation's voting stock. The existence of this provision may have an anti-takeover effect with respect to transactions that are not approved in advance by our board, including

discouraging attempts that might result in a premium over the market price for the shares of common stock held by stockholders.

No Cumulative Voting. Under Delaware law, cumulative voting for the election of directors is not permitted unless a corporation's certificate of incorporation authorizes cumulative voting. Our amended and restated certificate of incorporation does not provide for cumulative voting in the election of directors. Cumulative voting allows a minority stockholder to vote a portion or all of its shares for one or more candidates for seats on our board. Without cumulative voting, a minority stockholder will not be able to gain as many seats on our board based on the number of shares of our stock the stockholder holds as the stockholder would be able to gain if cumulative voting were permitted. The absence of cumulative voting makes it more difficult for a minority stockholder to gain a seat on our board to influence its decision regarding a takeover.

Amendment of Charter Provisions. The amendment of certain of the above provisions in our amended and restated certificate of incorporation and our amended and restated bylaws requires approval by holders of at least a majority of our outstanding capital stock entitled to vote generally in the election of directors.

These and other provisions could have the effect of discouraging others from attempting hostile takeovers, and, as a consequence, they may also inhibit temporary fluctuations in the market price of our common stock that often result from actual or rumored hostile takeover attempts. These provisions may also have the effect of preventing changes in our management. It is possible that these provisions could make it more difficult to accomplish transactions that stockholders might otherwise deem to be in their best interests.

Limitation of Liability and Indemnification

Our amended and restated certificate of incorporation provides that no director will be personally liable for monetary damages for breach of any fiduciary duty as a director, except with respect to liability:

- for any breach of the director's duty of loyalty to us or our stockholders;
- for acts or omissions not in good faith or that involve intentional misconduct or a knowing violation of law;
- under Section 174 of the DGCL (governing distributions to stockholders); or
- for any transaction from which the director derived any improper personal benefit.

If the DGCL is amended to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of our directors will be eliminated or limited to the fullest extent permitted by the DGCL, as so amended. The modification or repeal of this provision of our amended and restated certificate of incorporation will not adversely affect any right or protection of a director existing at the time of such modification or repeal.

Our amended and restated bylaws will also provide that we will, to the fullest extent permitted by law, indemnify our directors and officers against all liabilities and expenses in any suit or proceeding or arising out of their status as an officer or director or their activities in these capacities. We will also indemnify any person who, at our request, is or was serving as a director, officer, employee, agent or trustee of another corporation or of a partnership, limited liability company, joint venture, trust or other enterprise. We may, by action of our board, provide indemnification to our employees and agents within the same scope and effect as the foregoing indemnification of directors and officers.

Exclusive Forum

Our amended and restated certificate of incorporation will provide that the Court of Chancery of the State of Delaware will, to the fullest extent permitted by law, be the sole and exclusive forum for any (1) derivative action or proceeding brought on behalf of our company, (2) action asserting a claim of breach of a fiduciary duty owed by any director or officer of our company to our company or our company's stockholders, (3) action asserting a claim against our company arising pursuant to any provision of the DGCL or our

amended and restated certificate of incorporation or our amended and restated bylaws or (4) action asserting a claim against our company governed by the internal affairs doctrine. Any person or entity purchasing or otherwise acquiring any interest in shares of capital stock of our company shall be deemed to have notice of and consented to the forum provisions in our amended and restated certificate of incorporation. However, the enforceability of similar forum provisions in other companies' certificates of incorporation has been challenged in legal proceedings, and it is possible that a court could find these types of provisions to be unenforceable.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is Computershare Trust Company, N.A. and its address is 250 Royall Street, Canton, MA 02021.

Listing

We have applied to list our common stock on the Nasdaq Capital Market under the symbol "LQDA".

SHARES ELIGIBLE FOR FUTURE SALE

Immediately prior to this offering, there was no public market for shares of our common stock. Future sales of substantial amounts of shares of our common stock in the public market, or the perception that such sales may occur, could adversely affect the market price of our common stock. Although we have applied to list shares of our common stock on the Nasdaq Capital Market, we cannot assure you that there will be an active public market for shares of our common stock.

Based upon the number of shares of our common stock outstanding as of , 2018, we will have shares of common stock outstanding upon the closing of this offering. All the shares of our common stock sold in this offering will be freely tradable without restriction or further registration under the Securities Act, except for any such shares which may be held or acquired by our "affiliates," as that term is defined in Rule 144 promulgated under the Securities Act, which shares will be subject to the volume limitations and other restrictions of Rule 144 described below. The remaining shares of common stock will be "restricted securities," as that term is defined in Rule 144. These restricted securities will be eligible for public sale only if they are registered under the Securities Act, or if they qualify for an exemption from registration, for example, under Rule 144 or Rule 701, which are summarized below.

Subject to the provisions of Rules 144 and 701 under the Securities Act and the lock-up agreements described below, these restricted securities will be available for sale in the public market as follows:

Days After Date of this Prospectus	Shares Eligible for Sale	Comment
Date of Prospectus		Shares sold in this offering
90 Days		Shares saleable under Rules 144 and 701 that are not subject to a lock-up agreement
180 Days		Lock-up released; shares saleable under Rules 144 and 701

In addition, of the 23,652,297 shares of our common stock that were subject to options outstanding as of April 30, 2018, options to purchase 7,732,573 shares were exercisable as of April 30, 2018, and all of the warrants to purchase 4,394,914 shares of our common stock outstanding as of April 30, 2018 were exercisable as of that date. Furthermore, none of the 2,146,767 restricted stock units which were outstanding as of April 30, 2018 were vested as of such date.

Rule 144

In general, under Rule 144 as in effect on the date of this prospectus, a person who is not one of our affiliates at any time during the three months preceding a sale, and who has beneficially owned shares of our common stock for at least six months, would be entitled to sell an unlimited number of shares of our common stock provided current public information about us is available and, after owning such shares for at least one year, would be entitled to sell an unlimited number of shares of our common stock without restriction. Our affiliates who have beneficially owned restricted securities within the meaning of Rule 144 for at least six months would be entitled to sell within any three-month period a number of shares that does not exceed the greater of:

- 1.0% of the number of shares of our common stock then outstanding, which was equal to approximately shares as of , 2018; or

- the average weekly trading volume of our common stock on the during the four calendar weeks preceding the filing of a notice on Form 144 with respect to the sale.

Resales under Rule 144 by our affiliates are also subject to manner of sale provisions and notice requirements and to the availability of current public information about us. In addition, if the number of shares being sold under Rule 144 by an affiliate during any three-month period exceeds 5,000 shares or has an aggregate sale price of $50,000, the seller must file a notice on Form 144 with the SEC and the Nasdaq Capital Market concurrently with either the placing of a sale with the broker or the execution directly with a market maker.

Rule 701

Rule 701 generally allows a stockholder who purchased shares of our common stock pursuant to a written compensatory plan or contract and who is not deemed to have been an affiliate of our company during the immediately preceding 90 days to sell these shares in reliance upon Rule 144, but without being required to comply with the public information, holding period, volume limitation or notice provisions of Rule 144. Rule 701 also permits affiliates of our company to sell their Rule 701 shares under Rule 144 without complying with the holding period requirements of Rule 144. All holders of Rule 701 shares, however, are required by that rule to wait until 90 days after the date of this prospectus before selling those shares pursuant to Rule 701.

The SEC has indicated that Rule 701 will apply to stock options granted by an issuer before it becomes subject to the reporting requirements of the Exchange Act, along with the shares acquired upon exercise of such options, including exercises after an issuer becomes subject to the reporting requirements of the Exchange Act.

Form S-8 Registration Statements

Following the date of this prospectus, we intend to file one or more registration statements on Form S-8 under the Securities Act to register the issuance of up to shares of common stock under our equity incentive plans. These registration statements will become effective upon filing. All of the shares issued or to be issued upon the exercise of stock options or settlement of other awards under our stock plans are or will be eligible for resale in the public market without restrictions, subject to Rule 144 limitations applicable to affiliates and the lock-up agreements described below.

Lock-up Agreements

Notwithstanding the foregoing, we, our directors, executive officers and other holders of our shares of common stock and options and warrants to purchase our common stock collectively representing substantially all of our outstanding shares of common stock immediately prior to this offering, as well as the holders of our convertible preferred stock, have agreed with the underwriters, subject to limited exceptions, not to offer, sell, contract to sell, pledge, or otherwise dispose of, or to enter into any hedging or swap transaction with respect to, any shares of our common stock or any securities convertible into or exercisable or exchangeable for shares of our common stock for a period ending 180 days after the date of this prospectus.

The foregoing does not prohibit the establishment of a trading plan pursuant to Rule 10b5-1 under the Exchange Act during the period or transfers or dispositions by our directors, executive officers and other holders:

- with the prior written consent of Jefferies LLC and Cowen and Company, LLC;
- of shares of common stock or other securities acquired in this offering or in open market transactions after the completion of this offering;
- as a transfer pursuant to a bona fide third party tender offer, merger, consolidation or other similar transaction involving a change of control of our company;

- as a distribution to limited partners, members or stockholders of a holder of our common stock;
- as a transfer by a business entity to another business entity so long as the transferee controls or is under common control with the holder;
- as a transfer to a legal representative, heir, beneficiary or a member of the holder's immediate family;
- as a transfer to any trust for the direct or indirect benefit the holder or the immediate family of the holder and/or charitable organizations;
- as a bona fide gift, including pursuant to a domestic order or a negotiated divorce settlement, or estate or intestate succession; or
- as a transfer by operation of law, including pursuant to a court or regulatory agency order, a qualified domestic relations order or in connection with a divorce settlement.

Unless a transfer or disposition is made with the written consent of Jefferies LLC and Cowen and Company, LLC, the permitted transfers and dispositions described above may not be made (i) by any of our directors, executive officers and other holders unless the transfer or disposition does not result in any public disclosure or filing under the Exchange Act reporting a reduction in beneficial ownership of shares of common stock being required or voluntarily made during the lock-up period and (ii) by any of our directors, executive officers and other holders unless the transferee of each such shares agrees to be bound by the lock-up agreement. For more information regarding the lock-up agreements of our directors, executive officers and other holders, see "Underwriters."

Rule 10b5-1 Sales Plans

Our directors and executive officers may adopt written plans, known as Rule 10b5-1 plans, in which they will contract with a broker to buy or sell shares of our common stock on a periodic basis. Under a Rule 10b5-1 plan, a broker executes trades pursuant to parameters established by the director or officer when entering into the plan, without further direction from them. The director or officer may amend a Rule 10b5-1 plan in some circumstances and may terminate a plan at any time. Our directors and executive officers also may buy or sell additional shares outside of a Rule 10b5-1 plan when they are not in possession of material nonpublic information subject to compliance with the terms of our insider trading policy. Prior to 180 days after the date of this offering, subject to early termination, the sale of any shares under such plan would be prohibited by the lock-up agreement that the director or officer has entered into with the underwriters.

MATERIAL U.S. FEDERAL INCOME TAX CONSIDERATIONS TO NON-U.S. HOLDERS

The following discussion is a summary of the material U.S. federal income tax consequences to Non-U.S. Holders, as defined below, of the purchase, ownership and disposition of our common stock issued pursuant to this offering, but does not purport to be a complete analysis of all potential tax effects. The effects of other U.S. federal tax laws, such as estate and gift tax laws, and any applicable state, local or non-U.S. tax laws are not discussed. This discussion is based on the Code, Treasury Regulations promulgated thereunder, judicial decisions and published rulings and administrative pronouncements of the U.S. Internal Revenue Service, or the IRS, in each case in effect as of the date hereof. These authorities may change or be subject to differing interpretations. Any such change or differing interpretation may be applied retroactively in a manner that could adversely affect a Non-U.S. Holder of our common stock. We have not sought and will not seek any rulings from the IRS regarding the matters discussed below. There can be no assurance the IRS or a court will not take a contrary position to that discussed below regarding the tax consequences of the purchase, ownership and disposition of our common stock.

This discussion is limited to Non-U.S. Holders that hold our common stock as a "capital asset" within the meaning of Section 1221 of the Code (generally, property held for investment) and not in connection with a trade or business conducted or a permanent establishment maintained in the United States. This discussion does not address all U.S. federal income tax consequences relevant to a Non-U.S. Holder's particular circumstances, including the impact of the Medicare contribution tax on net investment income. In addition, it does not address consequences relevant to Non-U.S. Holders subject to special rules, including, without limitation:

- U.S. expatriates and former citizens or long-term residents of the United States;
- persons subject to the alternative minimum tax;
- persons holding our common stock as part of a hedge, straddle or other risk reduction strategy or as part of a conversion transaction or other integrated investment;
- banks, insurance companies and other financial institutions;
- brokers, dealers or traders in securities;
- "controlled foreign corporations," "passive foreign investment companies," and corporations that accumulate earnings to avoid U.S. federal income tax;
- partnerships or other entities or arrangements treated as partnerships for U.S. federal income tax purposes (and investors therein);
- tax-exempt organizations or governmental organizations;
- persons deemed to sell our common stock under the constructive sale provisions of the Code;
- persons who hold or receive our common stock pursuant to the exercise of any employee stock option or otherwise as compensation;
- tax-qualified retirement plans; and
- "qualified foreign pension funds" as defined in Section 897(l)(2) of the Code and entities all of the interests of which are held by qualified foreign pension funds.

If an entity treated as a partnership for U.S. federal income tax purposes holds our common stock, the tax treatment of a partner in the partnership will depend on the status of the partner, the activities of the partnership and certain determinations made at the partner level. Accordingly, partnerships holding our common stock and the partners in such partnerships should consult their tax advisors regarding the U.S. federal income tax consequences to them.

THIS DISCUSSION IS FOR INFORMATION PURPOSES ONLY AND IS NOT TAX ADVICE. INVESTORS SHOULD CONSULT THEIR TAX ADVISORS WITH RESPECT TO THE APPLICATION OF THE U.S. FEDERAL INCOME TAX LAWS TO THEIR PARTICULAR SITUATIONS AS WELL AS ANY TAX CONSEQUENCES OF

THE PURCHASE, OWNERSHIP AND DISPOSITION OF OUR COMMON STOCK ARISING UNDER THE U.S. FEDERAL ESTATE OR GIFT TAX LAWS OR UNDER THE LAWS OF ANY STATE, LOCAL OR NON-U.S. TAXING JURISDICTION OR UNDER ANY APPLICABLE INCOME TAX TREATY.

Definition of a Non-U.S. Holder

For purposes of this discussion, a "Non-U.S. Holder" is any beneficial owner of our common stock that is neither a "U.S. person" nor an entity treated as a partnership for U.S. federal income tax purposes. A U.S. person is any person that, for U.S. federal income tax purposes, is or is treated as any of the following:

- an individual who is a citizen or resident of the United States;
- a corporation created or organized under the laws of the United States, any state thereof, or the District of Columbia;
- an estate, the income of which is subject to U.S. federal income tax regardless of its source; or
- a trust that (1) is subject to the primary supervision of a U.S. court and the control of one or more "United States persons" (within the meaning of Section 7701(a)(30) of the Code), or (2) has a valid election in effect to be treated as a United States person for U.S. federal income tax purposes.

Distributions

As described in the section entitled "Dividend Policy," we do not anticipate declaring or paying dividends to holders of our common stock in the foreseeable future. However, if we do make distributions of cash or property on our common stock, such distributions will constitute dividends for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. Amounts not treated as dividends for U.S. federal income tax purposes will constitute a return of capital and first be applied against and reduce a Non-U.S. Holder's adjusted tax basis in its common stock, but not below zero. Any excess will be treated as capital gain and will be treated as described below under "— Sale or Other Taxable Disposition."

Dividends paid to a Non-U.S. Holder of our common stock will be subject to U.S. federal withholding tax at a rate of 30% of the gross amount of the dividends (or such lower rate specified by an applicable income tax treaty, provided the Non-U.S. Holder furnishes a valid IRS Form W-8BEN or W-8BEN-E (or other applicable documentation) certifying qualification for the lower treaty rate). A Non-U.S. Holder that does not timely furnish the required documentation, but that qualifies for a reduced treaty rate, may obtain a refund of any excess amounts withheld by timely filing an appropriate claim for refund with the IRS. Non-U.S. Holders should consult their tax advisors regarding their entitlement to benefits under any applicable income tax treaty.

Sale or Other Taxable Disposition

A Non-U.S. Holder will not be subject to U.S. federal income tax on any gain realized upon the sale or other taxable disposition of our common stock unless:

- the Non-U.S. Holder is a nonresident alien individual present in the United States for 183 days or more during the taxable year of the disposition and certain other requirements are met; or
- our common stock constitutes a U.S. real property interest, or USRPI, by reason of our status as a U.S. real property holding corporation, or USRPHC, for U.S. federal income tax purposes.

Gain described in the first bullet point above will be subject to U.S. federal income tax at a rate of 30% (or such lower rate specified by an applicable income tax treaty), which may be offset by U.S. source capital losses of the Non-U.S. Holder (even though the individual is not considered a resident of the United States), provided the Non-U.S. Holder has timely filed U.S. federal income tax returns with respect to such losses.

With respect to the second bullet point above, we believe we currently are not, and do not anticipate becoming, a USRPHC. Because the determination of whether we are a USRPHC depends, however, on the fair market value of our USRPIs relative to the fair market value of our non-U.S. real property interests and our other business assets, there can be no assurance we currently are not a USRPHC or will not become one in the future. Even if we are or were to become a USRPHC, gain arising from the sale or other taxable disposition by a Non-U.S. Holder of our common stock will not be subject to U.S. federal income tax if our common stock is "regularly traded," as defined by applicable Treasury Regulations, on an established securities market, and such Non-U.S. Holder owned, actually and constructively, 5% or less of our common stock throughout the shorter of the five-year period ending on the date of the sale or other taxable disposition or the Non-U.S. Holder's holding period.

Non-U.S. Holders should consult their tax advisors regarding potentially applicable income tax treaties that may provide for different rules.

However, no assurance can be provided that our common stock will be regularly traded on an established securities market for purposes of the rules described above. If we are a USRPHC and either our common stock is not regularly traded on an established securities market or a Non-U.S. Holder holds, or is treated as holding, more than 5% of our outstanding common stock, directly or indirectly, during the applicable testing period, any gain recognized by such Non-U.S. Holder will generally be subject to U.S. federal income tax rates in the same manner as if the Non-U.S. Holder were a resident of the United States. If we are a USRPHC and our common stock is not regularly traded on an established securities market, such Non-U.S. Holder's proceeds received on the disposition of shares will also generally be subject to withholding at a rate of 15%. Prospective investors are encouraged to consult their own tax advisors regarding the possible consequences to them if we are, or were to become, a USRPHC.

Information Reporting and Backup Withholding

Payments of dividends on our common stock will not be subject to backup withholding, provided the applicable withholding agent does not have actual knowledge or reason to know the holder is a United States person and the holder either certifies its non-U.S. status, such as by furnishing a valid IRS Form W-8BEN or W-8BEN-E, or otherwise establishes an exemption. However, information returns are required to be filed with the IRS in connection with any dividends on our common stock paid to the Non-U.S. Holder, regardless of whether any tax was actually withheld. In addition, proceeds of the sale or other taxable disposition of our common stock within the United States or conducted through certain U.S.-related brokers generally will not be subject to backup withholding or information reporting, if the applicable withholding agent receives the certification described above and does not have actual knowledge or reason to know that such holder is a United States person, or the holder otherwise establishes an exemption. Proceeds of a disposition of our common stock conducted through a non-U.S. office of a non-U.S. broker generally will not be subject to backup withholding or information reporting.

Copies of information returns that are filed with the IRS may also be made available under the provisions of an applicable treaty or agreement to the tax authorities of the country in which the Non-U.S. Holder resides or is established.

Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules may be allowed as a refund or a credit against a Non-U.S. Holder's U.S. federal income tax liability, provided the required information is timely furnished to the IRS.

Additional Withholding Tax on Payments Made to Foreign Accounts

Withholding taxes may be imposed under Sections 1471 to 1474 of the Code (such Sections commonly referred to as the Foreign Account Tax Compliance Act, or FATCA, on certain types of payments made to non-U.S. financial institutions and certain other non-U.S. entities. Specifically, a 30% withholding tax may be imposed on dividends on, or gross proceeds from the sale or other disposition of, our common stock paid

to a "foreign financial institution" or a "non-financial foreign entity" (each as defined in the Code), unless (1) the foreign financial institution undertakes certain diligence and reporting obligations, (2) the non-financial foreign entity either certifies it does not have any "substantial United States owners", as defined in the Code, or furnishes identifying information regarding each substantial United States owner or (3) the foreign financial institution or non-financial foreign entity otherwise qualifies for an exemption from these rules. If the payee is a foreign financial institution and is subject to the diligence and reporting requirements in (1) above, it must enter into an agreement with the U.S. Department of the Treasury requiring, among other things, that it undertake to identify accounts held by certain "specified United States persons" or "United States-owned foreign entities" (each as defined in the Code), annually report certain information about such accounts, and withhold 30% on certain payments to non-compliant foreign financial institutions and certain other account holders. Foreign financial institutions located in jurisdictions that have an intergovernmental agreement with the United States governing FATCA may be subject to different rules.

Under the applicable Treasury Regulations and administrative guidance, withholding under FATCA generally applies to payments of dividends on our common stock, and will apply to payments of gross proceeds from the sale or other disposition of such stock on or after January 1, 2019.

Prospective investors should consult their tax advisors regarding the potential application of withholding under FATCA to their investment in our common stock.

UNDERWRITING

Subject to the terms and conditions set forth in the underwriting agreement, dated , 2018, among us, Jefferies LLC and Cowen and Company, LLC, as the representatives of the underwriters named below and the joint book-running managers of this offering, we have agreed to sell to the underwriters, and each of the underwriters has agreed, severally and not jointly, to purchase from us, the respective number of shares of common stock shown opposite its name below:

UNDERWRITER	NUMBER OF SHARES
Jefferies LLC	
Cowen and Company, LLC	
Needham & Company, LLC	
Wedbush Securities Inc.	
Total	

The underwriting agreement provides that the obligations of the several underwriters are subject to certain conditions precedent such as the receipt by the underwriters of officers' certificates and legal opinions and approval of certain legal matters by their counsel. The underwriting agreement provides that the underwriters will purchase all of the shares of common stock if any of them are purchased. If an underwriter defaults, the underwriting agreement provides that the purchase commitments of the nondefaulting underwriters may be increased or the underwriting agreement may be terminated. We have agreed to indemnify the underwriters and certain of their controlling persons against certain liabilities, including liabilities under the Securities Act, and to contribute to payments that the underwriters may be required to make in respect of those liabilities.

The underwriters have advised us that, following the pricing of this offering, they currently intend to make a market in the common stock as permitted by applicable laws and regulations. However, the underwriters are not obligated to do so, and the underwriters may discontinue any market-making activities at any time without notice in their sole discretion. Accordingly, no assurance can be given as to the liquidity of the trading market for the common stock, that you will be able to sell any of the common stock held by you at a particular time or that the prices that you receive when you sell will be favorable.

The underwriters are offering the shares of common stock subject to their acceptance of the shares of common stock from us and subject to prior sale. The underwriters reserve the right to withdraw, cancel or modify offers to the public and to reject orders in whole or in part.

Commission and Expenses

The underwriters have advised us that they propose to offer the shares of common stock to the public at the initial public offering price set forth on the cover page of this prospectus and to certain dealers, which may include the underwriters, at that price less a concession not in excess of $ per share of common stock. The underwriters may allow, and certain dealers may reallow, a discount from the concession not in excess of $ per share of common stock to certain brokers and dealers. After the offering, the initial public offering price, concession and reallowance to dealers may be reduced by the representatives. No such reduction will change the amount of proceeds to be received by us as set forth on the cover page of this prospectus.

The following table shows the public offering price, the underwriting discounts and commissions that we are to pay the underwriters and the proceeds, before expenses, to us in connection with this offering. Such amounts are shown assuming both no exercise and full exercise of the underwriters' option to purchase additional shares.

	Per Share		Total	
	Without Option to Purchase Additional Shares	With Option to Purchase Additional Shares	Without Option to Purchase Additional Shares	With Option to Purchase Additional Shares
Public offering price	$	$	$	$
Underwriting discounts and commissions paid by us	$	$	$	$
Proceeds to us, before expenses	$	$	$	$

We estimate expenses payable by us in connection with this offering, other than the underwriting discounts and commissions referred to above, will be approximately $ million. We have also agreed to reimburse the underwriters for certain expenses, including an amount not to exceed $ in connection with the clearance of this offering with the Financial Industry Regulatory Authority, Inc., as set forth in the underwriting agreement.

Determination of Offering Price

Prior to this offering, there has not been a public market for our common stock. Consequently, the initial public offering price for our common stock will be determined by negotiations between us and the representatives. Among the factors to be considered in these negotiations will be prevailing market conditions, our financial information, market valuations of other companies that we and the underwriters believe to be comparable to us, estimates of our business potential, the present state of our development and other factors deemed relevant.

We offer no assurances that the initial public offering price will correspond to the price at which the common stock will trade in the public market subsequent to the offering or that an active trading market for the common stock will develop and continue after the offering.

Listing

We have applied to list our common stock on the Nasdaq Capital Market under the symbol "LQDA".

Option to Purchase Additional Shares

We have granted to the underwriters an option, exercisable for 30 days from the date of this prospectus, to purchase, from time to time, in whole or in part, up to an aggregate of shares from us at the public offering price set forth on the cover page of this prospectus, less underwriting discounts and commissions. If the underwriters exercise this option, each underwriter will be obligated, subject to specified conditions, to purchase a number of additional shares proportionate to that underwriter's initial purchase commitment as indicated in the table above. This option may be exercised only if the underwriters sell more shares than the total number set forth on the cover page of this prospectus.

No Sales of Similar Securities

We, our officers, directors and holders of all of our outstanding capital stock have agreed, subject to specified exceptions, not to directly or indirectly:

- sell, offer, contract or grant any option to sell (including any short sale), pledge, transfer, establish an open "put equivalent position" within the meaning of Rule 16a-l(h) under the Exchange Act;
- otherwise dispose of any shares of common stock, options or warrants to acquire shares of common stock, or securities exchangeable or exercisable for or convertible into shares of common stock currently or hereafter owned either of record or beneficially; or
- publicly announce an intention to do any of the foregoing for a period of 180 days after the date of this prospectus without the prior written consent of Jefferies LLC and Cowen and Company, LLC.

This restriction terminates after the close of trading of the common stock on and including the 180th day after the date of this prospectus.

Jefferies LLC and Cowen and Company, LLC may, in their discretion and at any time or from time to time before the termination of the 180-day period release all or any portion of the securities subject to lock-up agreements. There are no existing agreements between the underwriters and any of our stockholders who will execute a lock-up agreement, providing consent to the sale of shares prior to the expiration of the lock-up period.

Stabilization

The underwriters have advised us that they, pursuant to Regulation M under the Exchange Act, and certain persons participating in the offering may engage in short sale transactions, stabilizing transactions, syndicate covering transactions or the imposition of penalty bids in connection with this offering. These activities may have the effect of stabilizing or maintaining the market price of the common stock at a level above that which might otherwise prevail in the open market. Establishing short sales positions may involve either "covered" short sales or "naked" short sales.

"Covered" short sales are sales made in an amount not greater than the underwriters' option to purchase additional shares of our common stock in this offering. The underwriters may close out any covered short position by either exercising their option to purchase additional shares of our common stock or purchasing shares of our common stock in the open market. In determining the source of shares to close out the covered short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market as compared to the price at which they may purchase shares through the option to purchase additional shares.

"Naked" short sales are sales in excess of the option to purchase additional shares of our common stock. The underwriters must close out any naked short position by purchasing shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of the shares of our common stock in the open market after pricing that could adversely affect investors who purchase in this offering.

A stabilizing bid is a bid for the purchase of shares of common stock on behalf of the underwriters for the purpose of fixing or maintaining the price of the common stock. A syndicate covering transaction is the bid for or the purchase of shares of common stock on behalf of the underwriters to reduce a short position incurred by the underwriters in connection with the offering. Similar to other purchase transactions, the underwriter's purchases to cover the syndicate short sales may have the effect of raising or maintaining the market price of our common stock or preventing or retarding a decline in the market price of our common stock. As a result, the price of our common stock may be higher than the price that might otherwise exist in the open market. A penalty bid is an arrangement permitting the underwriters to reclaim the selling concession otherwise accruing to a syndicate member in connection with the offering if the common stock

originally sold by such syndicate member are purchased in a syndicate covering transaction and therefore have not been effectively placed by such syndicate member.

Neither we, nor any of the underwriters make any representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the price of our common stock. The underwriters are not obligated to engage in these activities and, if commenced, any of the activities may be discontinued at any time.

Electronic Distribution

A prospectus in electronic format may be made available by e-mail or on the websites or through online services maintained by one or more of the underwriters or their affiliates. In those cases, prospective investors may view offering terms online and may be allowed to place orders online. The underwriters may agree with us to allocate a specific number of shares of common stock for sale to online brokerage account holders. Any such allocation for online distributions will be made by the underwriters on the same basis as other allocations. Other than the prospectus in electronic format, the information on the underwriters' websites and any information contained in any other website maintained by any of the underwriters is not part of this prospectus, has not been approved and/or endorsed by us or the underwriters and should not be relied upon by investors.

Other Activities and Relationships

The underwriter and certain of its affiliates are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment management, investment research, principal investment, hedging, financing and brokerage activities. The underwriter and certain of its affiliates have, from time to time, performed, and may in the future perform, various commercial and investment banking and financial advisory services for us and our affiliates, for which they received or will receive customary fees and expenses.

In the ordinary course of their various business activities, the underwriter and certain of its affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers, and such investment and securities activities may involve securities and/or instruments issued by us and our affiliates. If the underwriters or their respective affiliates have a lending relationship with us, they routinely hedge their credit exposure to us consistent with their customary risk management policies. The underwriters and their respective affiliates may hedge such exposure by entering into transactions which consist of either the purchase of credit default swaps or the creation of short positions in our securities or the securities of our affiliates, including potentially the common stock offered hereby. Any such short positions could adversely affect future trading prices of the common stock offered hereby. The underwriters and certain of their respective affiliates may also communicate independent investment recommendations, market color or trading ideas and/or publish or express independent research views in respect of such securities or instruments and may at any time hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

Selling Restrictions

Australia

This prospectus is not a disclosure document for the purposes of Australia's Corporations Act 2001 (Cth) of Australia, or Corporations Act, has not been lodged with the Australian Securities & Investments Commission and is only directed to the categories of exempt persons set out below. Accordingly, if you receive this prospectus in Australia:

You confirm and warrant that you are either:

- a "sophisticated investor" under section 708(8)(a) or (b) of the Corporations Act;

- a "sophisticated investor" under section 708(8)(c) or (d) of the Corporations Act and that you have provided an accountant's certificate to us which complies with the requirements of section 708(8)(c)(i) or (ii) of the Corporations Act and related regulations before the offer has been made;
- a person associated with our company under Section 708(12) of the Corporations Act; or
- a "professional investor" within the meaning of section 708(11)(a) or (b) of the Corporations Act.

To the extent that you are unable to confirm or warrant that you are an exempt sophisticated investor, associated person or professional investor under the Corporations Act any offer made to you under this prospectus is void and incapable of acceptance.

You warrant and agree that you will not offer any of the securities issued to you pursuant to this prospectus for resale in Australia within 12 months of those securities being issued unless any such resale offer is exempt from the requirement to issue a disclosure document under section 708 of the Corporations Act.

Canada

Resale Restrictions

The distribution of our common stock in Canada is being made only in the provinces of Ontario, Quebec, Alberta and British Columbia on a private placement basis exempt from the requirement that we prepare and file a prospectus with the securities regulatory authorities in each province where trades of these securities are made. Any resale of our common stock in Canada must be made under applicable securities laws which may vary depending on the relevant jurisdiction, and which may require resales to be made under available statutory exemptions or under a discretionary exemption granted by the applicable Canadian securities regulatory authority. Purchasers are advised to seek legal advice prior to any resale of the securities.

Representations of Canadian Purchasers

By purchasing our common stock in Canada and accepting delivery of a purchase confirmation, a purchaser is representing to us and the dealer from whom the purchase confirmation is received that:

- the purchaser is entitled under applicable provincial securities laws to purchase the common stock without the benefit of a prospectus qualified under those securities laws as it is an "accredited investor" as defined under National Instrument 45-106 — Prospectus Exemptions;
- the purchaser is a "permitted client" as defined in National Instrument 31-103 — Registration Requirements, Exemptions and Ongoing Registrant Obligations;
- where required by law, the purchaser is purchasing as principal and not as agent; and
- the purchaser has reviewed the text above under "— Resale Restrictions."

Conflicts of Interest

Canadian purchasers are hereby notified that the underwriters are relying on the exemption set out in section 3A.3 or 3A.4, if applicable, of National Instrument 33-105 — *Underwriting Conflicts* from having to provide certain conflict of interest disclosure in this document.

Statutory Rights of Action

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if the prospectus (including any amendment thereto) such as this document contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser of our common stock in Canada should refer to any applicable provisions of the securities legislation of the purchaser's province or territory for particulars of these rights or consult with a legal advisor.

Enforcement of Legal Rights

All of our directors and officers as well as the experts named herein may be located outside of Canada and, as a result, it may not be possible for Canadian purchasers to effect service of process within Canada upon us or those persons. All or a substantial portion of our assets and the assets of those persons may be located outside of Canada and, as a result, it may not be possible to satisfy a judgment against us or those persons in Canada or to enforce a judgment obtained in Canadian courts against us or those persons outside of Canada.

Taxation and Eligibility for Investment

Canadian purchasers of our common stock should consult their own legal and tax advisors with respect to the tax consequences of an investment in our common stock in their particular circumstances and about the eligibility of our common stock for investment by the purchaser under relevant Canadian legislation.

Upon receipt of this document, each Canadian investor hereby confirms that it has expressly requested that all documents evidencing or relating in any way to the sale of the securities described herein (including for greater certainty any purchase confirmation or any notice) be drawn up in the English language only. *Par la réception de ce document, chaque investisseur canadien confirme par les présentes qu'il a expressément exigé que tous les documents faisant foi ou se rapportant de quelque manière que ce soit à la vente des valeurs mobilières décrites aux présentes (incluant, pour plus de certitude, toute confirmation d'achat ou tout avis) soient rédigés en anglais seulement.*

European Economic Area

In relation to each member state of the European Economic Area which has implemented the Prospectus Directive, each, a Relevant Member State, an offer to the public of any shares of common stock which are the subject of the offering contemplated by this prospectus may not be made in that Relevant Member State except that an offer to the public in that Relevant Member State of any shares of common stock may be made at any time under the following exemptions under the Prospectus Directive, if they have been implemented in that Relevant Member State:

- to any legal entity which is a "qualified investor" as defined in the Prospectus Directive;
- to fewer than 100 or, if the Relevant Member State has implemented the relevant provision of the 2010 PD Amending Directive, 150, natural or legal persons (other than qualified investors as defined in the Prospectus Directive), as permitted under the Prospectus Directive, subject to obtaining the prior consent of the underwriters or the underwriters nominated by us for any such offer; or
- in any other circumstances falling within Article 3(2) of the Prospectus Directive,

provided that no such offer of common stock shall require us or any of the underwriters to publish a prospectus pursuant to Article 3 of the Prospectus Directive or supplement a prospectus pursuant to Article 16 of the Prospectus Directive.

For the purposes of this provision, the expression "offer shares of common stock to the public" in relation to the shares of common stock in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and the common stock to be offered so as to enable an investor to decide to purchase or subscribe to the common stock, as the same may be varied in that Relevant Member State by any measure implementing the Prospectus Directive in that Relevant Member State and the expression "Prospectus Directive" means Directive 2003/71/EC (and amendments thereto, including the 2010 PD Amending Directive, to the extent implemented in the Relevant Member State), and includes any relevant implementing measure in the Relevant Member State and the expression "2010 PD Amending Directive" means Directive 2010/73/EU.

Hong Kong

No securities have been offered or sold, and no securities may be offered or sold, in Hong Kong, by means of any document, other than to persons whose ordinary business is to buy or sell shares or debentures,

whether as principal or agent; or to "professional investors" as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong, or SFO, and any rules made under that Ordinance; or in other circumstances which do not result in the document being a "prospectus" as defined in the Companies Ordinance (Cap. 32) of Hong Kong, or CO, or which do not constitute an offer or invitation to the public for the purpose of the CO or the SFO. No document, invitation or advertisement relating to the securities has been issued or may be issued or may be in the possession of any person for the purpose of issue (in each case whether in Hong Kong or elsewhere), which is directed at, or the contents of which are likely to be accessed or read by, the public of Hong Kong (except if permitted under the securities laws of Hong Kong) other than with respect to securities which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" as defined in the SFO and any rules made under that Ordinance.

This prospectus has not been registered with the Registrar of Companies in Hong Kong. Accordingly, this prospectus may not be issued, circulated or distributed in Hong Kong, and the securities may not be offered for subscription to members of the public in Hong Kong. Each person acquiring the securities will be required, and is deemed by the acquisition of the securities, to confirm that he is aware of the restriction on offers of the securities described in this prospectus and the relevant offering documents and that he is not acquiring, and has not been offered any securities in circumstances that contravene any such restrictions.

Japan

The offering has not been and will not be registered under the Financial Instruments and Exchange Law of Japan (Law No. 25 of 1948 of Japan, as amended), or FIEL, and the Initial Purchaser will not offer or sell any securities, directly or indirectly, in Japan or to, or for the benefit of, any resident of Japan (which term as used herein means any person resident in Japan, including any corporation or other entity organized under the laws of Japan), or to others for re-offering or resale, directly or indirectly, in Japan or to, or for the benefit of, any resident of Japan, except pursuant to an exemption from the registration requirements of, and otherwise in compliance with, the FIEL and any other applicable laws, regulations and ministerial guidelines of Japan.

Singapore

This prospectus has not been and will not be lodged or registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this prospectus and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the common stock may not be circulated or distributed, nor may the common stock be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore, or the SFA, (ii) to a relevant person pursuant to Section 275(1), or any person pursuant to Section 275(1A), and in accordance with the conditions specified in Section 275, of the SFA or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Where the common stock is subscribed or purchased under Section 275 of the SFA by a relevant person which is:

- a corporation (which is not an accredited investor, as defined in Section 4A of the SFA) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or
- a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor,

securities, as defined in Section 239(1) of the SFA, of that corporation or the beneficiaries' rights and interest (howsoever described) in that trust shall not be transferred within six months after that corporation or that trust has acquired the common stock pursuant to an offer made under Section 275 of the SFA except:

- to an institutional investor or to a relevant person defined in Section 275(2) of the SFA, or to any person arising from an offer referred to in Section 275(1A) or Section 276(4)(i)(B) of the SFA;

- where no consideration is or will be given for the transfer;
- where the transfer is by operation of law;
- as specified in Section 276(7) of the SFA; or
- as specified in Regulation 32 of the Securities and Futures (Offers of Investments) (Shares and Debentures) Regulations 2005 of Singapore.

Switzerland

The securities may not be publicly offered in Switzerland and will not be listed on the SIX Swiss Exchange, or SIX, or on any other stock exchange or regulated trading facility in Switzerland. This prospectus has been prepared without regard to the disclosure standards for issuance prospectuses under art. 652a or art. 1156 of the Swiss Code of Obligations or the disclosure standards for listing prospectuses under art. 27 ff. of the SIX Listing Rules or the listing rules of any other stock exchange or regulated trading facility in Switzerland. Neither this prospectus nor any other offering or marketing material relating to the securities or the offering may be publicly distributed or otherwise made publicly available in Switzerland.

Neither this prospectus nor any other offering or marketing material relating to the offering, our company or the securities have been or will be filed with or approved by any Swiss regulatory authority. In particular, this prospectus will not be filed with, and the offer of securities will not be supervised by, the Swiss Financial Market Supervisory Authority FINMA, and the offer of securities has not been and will not be authorized under the Swiss Federal Act on Collective Investment Schemes, or CISA. The investor protection afforded to acquirers of interests in collective investment schemes under the CISA does not extend to acquirers of securities.

United Kingdom

This prospectus is only being distributed to, and is only directed at, persons in the United Kingdom that are qualified investors within the meaning of Article 2(1)(e) of the Prospectus Directive that are also (i) investment professionals falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005, as amended, or the Order, and/or (ii) high net worth entities falling within Article 49(2)(a) to (d) of the Order and other persons to whom it may lawfully be communicated, each such person being referred to as a "relevant person".

This prospectus and its contents are confidential and should not be distributed, published or reproduced (in whole or in part) or disclosed by recipients to any other persons in the United Kingdom. Any person in the United Kingdom that is not a relevant person should not act or rely on this document or any of its contents.

LEGAL MATTERS

The validity of the shares of common stock offered hereby will be passed upon for us by DLA Piper LLP (US), Short Hills, New Jersey. Cooley LLP is serving as counsel for the underwriters.

EXPERTS

The financial statements as of December 31, 2016 and 2017 and for each of the two years in the period ended December 31, 2017 included in this prospectus have been so included in reliance on the report (which contains an explanatory paragraph relating to our ability to continue as a going concern as described in Note 2 to the financial statements) of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a registration statement on Form S-1 under the Securities Act with respect to the shares of common stock offered hereby. This prospectus, which constitutes a part of the registration statement, does not contain all of the information set forth in the registration statement or the exhibits and schedules filed therewith. For further information about us and the common stock offered hereby, we refer you to the registration statement and the exhibits and schedules filed thereto. Statements contained in this prospectus regarding the contents of any contract or any other document that is filed as an exhibit to the registration statement are not necessarily complete, and each such statement is qualified in all respects by reference to the full text of such contract or other document filed as an exhibit to the registration statement.

Upon the closing of this offering, we will be required to file periodic reports, proxy statements and other information with the SEC pursuant to the Exchange Act. You may read and copy this information at the Public Reference Room of the SEC, 100 F Street, N.E., Room 1580, Washington, D.C. 20549. You may obtain information on the operation of the public reference rooms by calling the SEC at 1-800-SEC-0330. The SEC also maintains an Internet website that contains reports, proxy statements and other information about registrants, like us, that file electronically with the SEC. The address of that site is www.sec.gov. We also maintain a website at *www.liquidia.com*, at which you may access these materials free of charge as soon as reasonably practicable after they are electronically filed with, or furnished to, the SEC. The information contained in, or that can be accessed through, our website is not part of, and is not incorporated into, this prospectus.

INDEX TO FINANCIAL STATEMENTS

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of
Liquidia Technologies, Inc.

Opinion on the Financial Statements

We have audited the accompanying balance sheets of Liquidia Technologies, Inc. as of December 31, 2017 and 2016, and the related statements of operations and comprehensive loss, of stockholders' deficit, and of cash flows for the years then ended, including the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2017 and 2016, and the results of its operations and its cash flows for the years then ended in conformity with accounting principles generally accepted in the United States of America.

Substantial Doubt About the Company's Ability to Continue as a Going Concern

The accompanying financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 2 to the financial statements, the Company has suffered recurring losses and cash outflows from operations, has an accumulated deficit, and debt maturing within twelve months that raise substantial doubt about its ability to continue as a going concern. Management's plans in regard to these matters are also described in Note 2. The financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits of these financial statements in accordance with the standards of the PCAOB and in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ PricewaterhouseCoopers LLP

Raleigh, North Carolina
March 14, 2018

We have served as the Company's auditor since 2014.

Liquidia Technologies, Inc.
Balance Sheets

	December 31, 2016	December 31, 2017
Assets		
Current assets:		
Cash	$ 1,438,712	$ 3,418,979
Accounts receivable, less allowance of $48,108 and $48,108, respectively	1,149,402	1,622,179
Related party receivable, net, less allowance of $0 and $0, respectively	89,318	—
Prepaid expenses and other current assets	468,666	443,460
Total current assets	3,146,098	5,484,618
Property, plant and equipment, net	4,347,711	8,243,012
Prepaid expenses and other assets	992,724	1,115,972
Total assets	$ 8,486,533	$ 14,843,602
Liabilities and stockholders' deficit		
Current liabilities:		
Accounts payable	$ 2,407,244	$ 4,424,948
Accrued expenses	892,859	2,785,618
Accrued compensation	1,953,816	1,952,505
Accrued interest	62,303	1,408,869
Deferred rent	208,914	268,628
Current portion of capital lease obligations	324,512	469,798
Current portion of deferred revenue	3,343,217	3,605,199
Current portion of long-term debt	2,898,101	15,608,349
Total current liabilities	12,090,966	30,523,914
Long-term capital lease obligations	243,426	510,625
Long-term deferred rent	456,904	2,612,552
Long-term deferred revenue	8,724,881	5,527,296
Long-term debt	5,215,559	5,556,782
Deferred financing obligation	—	1,341,810
Warrant liabilities	—	2,462,859
Total liabilities	26,731,736	48,535,838
Commitments and contingencies (Note 10)		
Stockholders' deficit:		
Preferred stock — Series A, $0.001 par value, 1,974,430 shares authorized, issued and outstanding as of December 31, 2016 and 2017, liquidation preference of $2,625,992	1,974	1,974
Preferred stock — Series A-1, $0.001 par value, 1,834,862 shares authorized, issued and outstanding as of December 31, 2016 and 2017, liquidation preference of $6,000,000	1,835	1,835
Preferred stock — Series B, $0.001 par value, 4,620,123 shares authorized, 4,496,908 issued and outstanding as of December 31, 2016 and 2017, liquidation preference of $16,000,000	4,497	4,497
Preferred stock — Series C, $0.001 par value, 17,102,578 shares authorized, issued and outstanding as of December 31, 2016 and 2017, liquidation preference of $25,000,035	17,103	17,103
Preferred stock — Series C-1, $0.001 par value, 17,556,178 and 91,000,000 shares authorized as of December 31, 2016 and 2017, respectively, 17,556,178 issued and outstanding as of December 31, 2016 and 2017, liquidation preference of $14,000,000	17,556	17,556
Common stock — Class A (voting), $0.001 par value, 87,615,152 and 175,000,000 shares authorized as of December 31, 2016 and 2017, respectivley, 8,978,960 and 9,254,228 shares issued and outstanding as of December 31, 2016 and 2017, respectively	8,979	9,254
Common stock — Class B (non-voting), $0.001 par value, 330,664 shares authorized, issued and outstanding as of December 31, 2016 and 2017	331	331
Additional paid-in capital	66,016,593	79,668,525
Less: Related party note receivable for stock option exercise	(55,000)	—
Accumulated deficit	(84,259,071)	(113,413,311)
Total stockholders' deficit	(18,245,203)	(33,692,236)
Total liabilities and stockholders' deficit	$ 8,486,533	$ 14,843,602

The accompanying notes are an integral part of these financial statements.

Liquidia Technologies, Inc.
Statements of Operations and Comprehensive Loss

	For the year ended December 31,	
	2016	2017
Revenues	$ 13,216,989	$ 7,258,123
Costs and expenses:		
Cost of sales	918,778	319,759
Research and development	23,319,886	24,753,876
General and administrative	4,841,128	10,212,774
Total costs and expenses	29,079,792	35,286,409
Loss from operations	(15,862,803)	(28,028,286)
Other income (expense):		
Interest income	14,906	268
Interest expense	(85,865)	(13,010,475)
Derivative and warrant fair value adjustments	—	11,884,253
Total other income (expense), net	(70,959)	(1,125,954)
Net loss	(15,933,762)	(29,154,240)
Other comprehensive loss	—	—
Comprehensive loss	$ (15,933,762)	$ (29,154,240)
PER SHARE DATA:		
Basic and diluted net loss per share	$ (2.16)	$ (3.08)
Weighted average common shares outstanding, basic and diluted	7,361,596	9,475,083

The accompanying notes are an integral part of these financial statements.

Liquidia Technologies, Inc.

Statements of Stockholders' Deficit

For the years ended December 31, 2016 and 2017

	Preferred Stock										Common Stock						
	Series A		Series A-1		Series B		Series C		Series C-1		Class A Voting		Class B Nonvoting		Additional Paid-In Capital	Accumulated Deficit	Stockholders' Deficit
	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount			
Balance as of December 31, 2015	**1,974,430**	**$ 1,974**	**1,834,862**	**$ 1,835**	**4,496,908**	**$ 4,497**	**17,102,578**	**$ 17,103**	**17,556,178**	**$ 17,556**	**5,855,807**	**$ 5,856**	**330,664**	**$ 331**	**$65,171,804**	**$ (68,325,309)**	**$ (3,104,353)**
Exercise of stock options	—	—	—	—	—	—	—	—	—	—	3,123,153	3,123	—	—	497,345	—	500,468
Stock-based compensation	—	—	—	—	—	—	—	—	—	—	—	—	—	—	347,444	—	347,444
Note to related party shareholder	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(55,000)	—	(55,000)
Net loss	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(15,933,762)	(15,933,762)
Balance as of December 31, 2016	**1,974,430**	**1,974**	**1,834,862**	**1,835**	**4,496,908**	**4,497**	**17,102,578**	**17,103**	**17,556,178**	**17,556**	**8,978,960**	**8,979**	**330,664**	**331**	**65,961,593**	**(84,259,071)**	**(18,245,203)**
Exercise of stock options	—	—	—	—	—	—	—	—	—	—	255,268	255	—	—	86,448	—	86,703
Exercise of warrants	—	—	—	—	—	—	—	—	—	—	20,000	20	—	—	9,980	—	10,000
Stock-based compensation	—	—	—	—	—	—	—	—	—	—	—	—	—	—	514,092	—	514,092
Repayment of note to related party shareholder	—	—	—	—	—	—	—	—	—	—	—	—	—	—	55,000	—	55,000
Beneficial conversion feature on Convertible Notes	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13,041,412	—	13,041,412
Net loss	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(29,154,240)	(29,154,240)
Balance as of December 31, 2017	1,974,430	$ 1,974	1,834,862	$ 1,835	4,496,908	$ 4,497	17,102,578	$ 17,103	17,556,178	$ 17,556	9,254,228	$ 9,254	330,664	$ 331	$79,668,525	$(113,413,311)	$ (33,692,236)

The accompanying notes are an integral part of these financial statements.

Liquidia Technologies, Inc.
Statements of Cash Flows

	For the year ended December 31,	
	2016	2017
Operating activities		
Net loss	$ (15,933,762)	$ (29,154,240)
Adjustments to reconcile net loss to net cash used in operating activities:		
Stock-based compensation	347,444	514,092
Depreciation	651,560	931,931
Amortization of discount on long-term debt	—	9,837,985
Non-cash interest expense	—	2,859,102
Derivative fair value adjustment	—	(9,872,990)
Warrant fair value adjustment	—	(2,011,263)
Non-cash rent expense	391,651	233,449
Lease incentive	—	1,981,915
Changes in operating assets and liabilities:		
Accounts and related party receivables	2,527,304	(328,458)
Prepaid expenses and other current assets	1,655,775	25,206
Other non-current assets	(966,104)	(123,249)
Accounts payable	1,313,193	1,872,852
Accrued expenses	575,903	1,985,263
Accrued compensation	892,426	(1,310)
Accrued interest	5,374	(105,036)
Deferred revenue	(5,407,465)	(2,935,603)
Net cash used in operating activities	(13,946,701)	(24,290,354)
Investing activities		
Purchases of property, plant and equipment	(2,885,159)	(2,544,064)
Net cash used in investing activities	(2,885,159)	(2,544,064)
Financing activities		
Principal payments on capital lease obligations	(335,875)	(384,024)
Proceeds from issuance of convertible notes	—	27,388,524
Proceeds from issuance of long-term debt	6,000,000	4,000,000
Principal payments on long-term debt	—	(888,890)
Payments for debt issuance costs	—	(1,397,628)
Proceeds from exercise of stock options and warrants	445,468	96,703
Net cash provided by financing activities	6,109,593	28,814,685
Net increase (decrease) in cash	(10,722,267)	1,980,267
Cash, beginning of period	12,160,979	1,438,712
Cash, end of period	$ 1,438,712	$ 3,418,979
Supplemental disclosure of cash flow information		
Cash paid for interest	$ 92,155	$ 313,390
Purchase of equipment with capital leases	$ 69,136	$ 796,508
Purchase of equipment in accounts payable	$ 21,486	$ 144,852
Purchase of build-to-suit asset with deferred financing obligation	$ —	$ 1,341,810
Conversion of accrued interest to long-term debt	$ 8,251	$ 41,271
Conversion of accrued expenses to debt	$ 1,500,000	$ —
Recording of warrant liabilities with corresponding discount on convertible notes	$ —	$ 4,474,122
Recording of derivative liabilities with corresponding discount on convertible notes	$ —	$ 9,872,990
Recording of discount on convertible notes as paid-in capital for beneficial conversion feature	$ —	$ 12,119,584
Issuance of convertible note for debt issuance costs	$ —	$ 442,356
Related party note receivable for stock option exercise	$ 55,000	$ —

The accompanying notes are an integral part of these financial statements.

Liquidia Technologies, Inc.

Notes to Financial Statements

December 31, 2016 and 2017

1. Organization and Description of the Business

Liquidia Technologies, Inc. ("Liquidia" or the "Company"), is a late-stage clinical biopharmaceutical company focused on the development and commercialization of human therapeutics using the Company's proprietary PRINT technology to transform the lives of patients. PRINT is a particle engineering platform that enables precise production of uniform drug particles designed to improve the safety, efficacy and performance of a wide range of therapies. The Company is currently focused on the development of two product candidates for which it holds worldwide commercial rights: LIQ861 for the treatment of pulmonary arterial hypertension and LIQ865 for the treatment of local post-operative pain.

The development and commercialization activities are conducted at the Company's headquarters located in Morrisville, North Carolina. The Company was incorporated under the laws of the state of Delaware in 2004.

2. Significant Accounting Policies

Basis of Presentation

The Company's financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America ("GAAP"). Such financial statements reflect all adjustments that are, in management's opinion, necessary to present fairly, in all material respects, the Company's financial position, results of operations and cash flows and are presented in U.S. Dollars. Certain prior period amounts have been reclassified to conform to the current period presentation.

Variable Interest Entities

The Company identifies entities (i) that do not have sufficient equity investment at risk to permit the entity to finance its activities without additional subordinated financial support or (ii) in which the equity investors lack an essential characteristic of a controlling financial interest as variable interest entities ("VIE" or "VIEs"). The Company performs an initial and on-going evaluation of the entities with which the Company has variable interests to determine if any of these entities are VIEs. If an entity is identified as a VIE, the Company performs an assessment to determine whether the Company has both (i) the power to direct activities that most significantly impact the VIE's economic performance and (ii) the obligation to absorb losses from or the right to receive benefits of the VIE that could potentially be significant to the VIE. If both of these criteria are satisfied, the Company is identified as the primary beneficiary of the VIE and the entity must be consolidated.

Envisia Therapeutics Inc.

The Company determined Envisia Therapeutics Inc. ("Envisia") is a VIE. The Company formed Envisia in November 2013 through the issuance of $25 million of Series A preferred stock of Envisia to investors who at the time were also investors in Liquidia. In addition, at formation, in exchange for 1,000,000 shares of Envisia common stock, the Company granted to Envisia a worldwide, exclusive, royalty-free license to utilize the PRINT technology in specified fields. Envisia's focus is on therapies in ophthalmology and its programs were in the preclinical stage of development when the company was formed. Under the license agreement, any intellectual property advancements by Envisia related to PRINT automatically become licensed to Liquidia under a transferable, fully paid, royalty-free, exclusive, sub-licensable, worldwide license, for use in its respective fields. Immediately subsequent to the formation, pursuant to an obligation to UNC under the UNC Letter Agreement (Note 5), the Company transfered 200,000 shares of Envisia common stock to UNC. The Company's initial investment in the 800,000 shares of Envisia common stock (post transfer of shares to UNC) was recorded at its estimated fair value of $930,000.

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

2. Significant Accounting Policies (Continued)

In May 2015, the Company repurchased the license in the dermatology and articular fields, as defined, from Envisia in exchange for 50,000 shares of its Envisia common stock, reducing the Company's ownership percentage. In March 2017, the license related to the Otic field, along with other intellectual property rights, as defined, was purchased back by the Company from Envisia in exchange for 75,000 shares of its Envisia common stock. The purchase prices were not material and were based upon prior third-party appraisals performed by CapVal-American Business Appraisers, LLC. The valuations of Envisia common stock were for Internal Revenue Code Section 409A, or 409A, and ASC 718, *Compensation—Stock Compensation*, or ASC 718, purposes. These standards of value may not be appropriate for a market transaction, and furthermore, the dates are different and therefore such number of shares could be different for this purpose. The Company's initial investment in Envisia common stock was recorded at its estimated fair value of $930,000 as of the formation date. As part of the license agreement entered into between Liquidia and Envisia, any intellectual property advancements by Envisia related to PRINT automatically become licensed to Liquidia under a transferable, fully paid, royalty-free, exclusive, sub-licensable, worldwide license, for use in its respective fields.

In October 2017, Envisia sold its license to the PRINT technology to Aerie Pharmaceuticals, Inc. ("Aerie") for initial consideration of $25 million in the form of a combination of cash and Aerie common stock, with the potential to earn additional payments subject to achievement of certain product approval milestones. The Company did not receive any proceeds from this transaction at closing.

As of December 31, 2016 and 2017, Liquidia's common equity ownership percentage in Envisia was approximately 77% and 75%, respectively, and its ownership percentage of voting shares was 4.9% and 4.4%, respectively. Although Liquidia's common equity ownership in Envisia was greater than 50%, control did not rest with the Company; however, the Company had the ability to exercise significant influence over operating and financial policies of Envisia and for a limited time had certain management personnel in common with Envisia. The Company does not have the power to direct activities of Envisia that most significantly impact Envisia's economic performance. Envisia has a board that is independent from Liquidia which approves all activities that affect Envisia's performance, such as selling and purchasing of goods or services; selecting, acquiring or disposing of assets; and researching and developing new products or processes. Additionally, the license rights given to Envisia are irrevocable. Accordingly, the Company accounts for Envisia using the equity method.

LQ3 Pharma, Inc.

The Company has determined that LQ3 Pharma, Inc ("LQ3") is a VIE. In July 2014, the Company formed LQ3 through the issuance of $10 million Series A preferred stock of LQ3 primarily from a single investor who also holds an investment in Liquidia. At the time of the formation of LQ3, the Company granted to LQ3 a worldwide, exclusive, royalty-free license to utilize the PRINT technology in a specified field. LQ3's focus was on field of diseases in the head and neck, leveraging Liquidia's PRINT platform. Following the formation of LQ3, the Company held 900,000 shares of LQ3 common stock after the transfer of 100,000 shares of LQ3 to UNC related to obligations under the UNC Letter Agreement (see Note 5).

As of December 31, 2015, Liquidia's ownership percentage of voting shares was 19.8%. The Company's initial investment in LQ3 common stock was recorded at its estimated fair value of $157,140 as of the formation date. As part of the license agreement entered into between Liquidia and LQ3, any intellectual property advancements by LQ3 for PRINT revert to Liquidia, to be added to the body of technology licensed to LQ3 in its respective fields.

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

2. Significant Accounting Policies (Continued)

In February 2016, LQ3 terminated the development of its sole product and, therefore, ceased its operations. LQ3 also relinquished its license to the PRINT technology for a waiver by the Company of any fees or payments related to shared services beyond that which had been billed. As of the date of termination of operations, no amounts were due from LQ3.

As of December 31, 2016 and 2017, Liquidia's common equity ownership percentage was 0%. Although Liquidia's common equity ownership in LQ3 was greater than 50% in prior years, control did not rest with the Company; however, the Company had the ability to exercise significant influence over operating and financial policies. The Company did not have the power to direct activities of LQ3 that most significantly impacted LQ3's economic performance. Additionally, the license rights given to LQ3 were irrevocable. Accordingly, the Company accounted for LQ3 using the equity method.

Envisia and LQ3 reported net losses from operations for all years since inception. As a result of the Company recording its share of losses incurred by each of these investees in their intial year, the Company's investment in each was reduced to $0 (as of December 31, 2013 for Envisia and December 31, 2014 for LQ3). Envisia and LQ3 reported losses for all subsequent periods, and accordingly, the Company's investment in these entites remained recorded at $0 for all years presented. The initial investment amounts recorded represent the Company's maximum risk of loss related to these VIEs.

Going Concern

The Company's financial statements have been prepared assuming the Company will continue as a going concern, which contemplates the realization of assets and the settlement of liabilities and commitments in the normal course of business.

The Company's operations have consisted primarily of developing its technology, developing products, prosecuting its intellectual property and securing financing. The Company has incurred recurring losses and cash outflows from operations, has an accumulated deficit, and has debt maturing within twelve months. The Company expects to continue to incur losses in the foreseeable future and will require additional financial resources to continue to advance its products and intellectual property, in addition to repaying its maturing debt and other obligations.

These circumstances raise substantial doubt about the Company's ability to continue as a going concern. Management's plans with regard to this matter include continuing attempts to obtain additional financing from its current investors and new investors to sustain its operations or to pursue other financing alternatives. However, there is no assurance that the Company will be successful in obtaining sufficient financing on terms acceptable to the Company, and the failure of the Company to obtain sufficient funds on acceptable terms, when needed, could have a material adverse effect on the Company's business, results of operations and financial condition. If sufficient financings are not obtained, this may necessitate other actions by the Company. The financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

2. Significant Accounting Policies (Continued)

assets and liabilities as of the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual amounts could differ from those estimates.

Shared Services

Liquidia was party to shared service agreements with Envisia and LQ3, whereby they shared facilities, patent costs, management services and manufacturing in exchange for monetary consideration through June 30, 2016, after which such agreements were terminated.

Equity Method Investments

The Company holds investments in equity method investees. Investments in equity method investees are those for which the Company has the ability to exercise significant influence but does not control and is not the primary beneficiary. Significant influence typically exists if the Company has a 20% or more voting interest in the venture, unless predominant evidence to the contrary exists. Under this method of accounting, the Company records its proportionate share of the net earnings or losses of equity method investees and a corresponding increase or decrease to the investment balances. Cash payments to equity method investees such as additional investments, loans and advances, as well as payments from equity method investees such as dividends, distributions and repayments of loans and advances, are recorded as adjustments to investment balances. The Company evaluates its equity method investments for impairment whenever events or changes in circumstances indicate that the carrying amounts of such investments may not be recoverable.

Cash

The Company considers all highly liquid investments with a maturity of three months or less, when purchased, to be cash equivalents. The Company had no cash equivalents at December 31, 2016 and 2017.

Accounts Receivable

Accounts receivable are stated at historical cost less an allowance for doubtful accounts as of each Balance Sheet date. The Company does not accrue interest on trade receivables. On a periodic basis, the Company evaluates its accounts receivable and establishes an allowance based on its history of collections and write-offs and the current status of all receivables. The Company writes off customer receivables when it becomes apparent, based upon customer facts and circumstances, that such amounts will not be collected.

Concentration of Credit Risk

Financial instruments that potentially subject the Company to concentrations of credit risk consist of cash, accounts receivable and related party receivables. The Company is exposed to credit risk, subject to federal deposit insurance, in the event of default by the financial institutions holding its cash to the extent of amounts recorded on the Balance Sheet. With regards to cash, 100% of the Company's cash is held on deposit with Pacific Western Bank. With regards to revenues and accounts receivable, GlaxoSmithKline ("GSK", "GSK Vaccines" and "GSK Inhaled") accounted for 90% and 84% of the Company's revenues for the years ended December 31, 2016 and 2017, respectively, and 67% and 69% of the Company's accounts receivable as of December 31, 2016 and 2017, respectively.

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

2. Significant Accounting Policies (Continued)

Property, Plant and Equipment

Property, plant and equipment are stated at cost. Depreciation of property, plant and equipment is computed using the straight-line method over the estimated useful lives of the assets beginning when the assets are placed in service. Estimated useful lives for the major asset categories are:

Lab equipment	5 - 7 years
Office equipment	5 years
Furniture and fixtures	10 years
Computer equipment	3 years
Leasehold improvements	Lesser of life of the asset or remaining lease term

The Company has entered into grant agreements with governmental agencies to perform defined research activities. Under those grants, the Company purchases lab equipment required to perform the necessary research. Those specific assets are depreciated over the lesser of the useful life of the assets or the effective duration of the grant.

Major renewals and improvements are capitalized to the extent that they increase the useful economic life or increase the expected economic benefit of the underlying asset. Maintenance and repairs are charged to operations as incurred. When items of property, plant and equipment are sold or retired, the related cost and accumulated depreciation or amortization is removed from the accounts, and any gain or loss is included in operating expenses in the accompanying Statements of Operations and Comprehensive Loss.

Impairment of Long-Lived Assets

The Company evaluates long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying value of an asset may not be recoverable. If the estimated future cash flows (undiscounted and without interest charges) from the use of an asset are less than the carrying value, a write-down is recorded to reduce the related asset to its estimated fair value. To date, no such write-downs have occurred.

Deferred Rent

Rent expense is recognized on a straight-line basis over the life of the lease. The difference between rent expense recognized and rental payments, as stipulated in the lease, is reflected as deferred rent in the accompanying Balance Sheets and amortized over the life of the lease. In addition, deferred rent also includes landlord incentives on a portion of the leasehold improvement cost, which is amortized over the life of the lease.

Revenue Recognition

The Company follows the revenue-recognition guidance established by Financial Accounting Standards Board, or FASB, ASC Topic 605, *Revenue Recognition*, or ASC 605. In determining the accounting for collaboration agreements, the Company follows the related guidance. Guidance is provided on whether an arrangement that involves multiple revenue-generating activities or deliverables should be divided into separate units of accounting for revenue-recognition purposes and, if division is required, how the arrangement consideration should be allocated among the separate units of accounting. If the arrangement constitutes separate units of accounting according to the separation criteria of the guidance, a revenue-

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

2. Significant Accounting Policies (Continued)

recognition policy must be determined for each unit. If the arrangement constitutes a single unit of accounting, the revenue-recognition policy must be determined for the entire arrangement.

Collaboration research and development revenue is recognized as research is performed and related expenses are incurred. Non-refundable up-front fees, which may include, for example, an initial payment upon effectiveness of the contractual relationship or payment to secure a right for a future license, are recorded as deferred revenue and recognized into revenue on a straight-line basis over the estimated period of the Company's substantive performance obligations. If the Company does not have substantive performance obligations, it recognizes non-refundable up-front fees into revenue over the estimated development period.

Revenue for non-refundable payments based on the achievement of milestone events under collaboration agreements are recognized in accordance with ASC 605-28-50-2(e). Milestone events under the Company's collaboration agreements may include research, development, regulatory or commercialization events. A milestone payment is recognized as revenue when the applicable event is achieved, if the event meets the definition of a milestone and the milestone is determined to be substantive. A milestone event is an event having all of the following characteristics: (1) there is substantive uncertainty regarding achievement of the milestone event at the inception of the arrangement; (2) the event can only be achieved based, in whole or in part, on either the Company's performance or a specific outcome resulting from the Company's performance; and (3) if achieved, the event would result in an additional payment due to the Company. The Company also treats events that can only be achieved based, in whole or in part, on either a third party's performance or a specific outcome resulting from a third party's performance, as milestone events if the criteria of the guidance are otherwise satisfied.

A milestone is considered substantive if it meets all of the following criteria: (a) the payment is commensurate with either the Company's performance to achieve the milestone or with the enhancement of the value of the delivered item; (b) the payment relates solely to past performance; and (c) the payment is reasonable relative to all of the deliverables and payment terms within the arrangement. If any of these conditions is not met, the milestone payment is deferred and recognized on a straight-line basis over a period determined as discussed above.

Grant payments are recognized as grant revenue as the Company performs the work and incurs reimbursable costs in accordance with the objectives of the award.

Segment Data

The Company manages, reports and evaluates its business in the following two segments: Pharmaceutical Products (formerly named Specialty Pharmaceutical) and Partnering and Licensing. The Company's reportable operating segments have been determined in accordance with the Company's internal management structure, which is organized based on operating activities, the manner in which the Company organizes segments for making operating decisions and assessing performance and the availability of separate financial results. Unallocated operations and corporate expenses, such as depreciation, facilities costs, corporate management costs and interest expense, are represented within Corporate / Operations.

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

2. Significant Accounting Policies (Continued)

Pharmaceutical Products — The Company utilizes its proprietary PRINT technology to develop novel drug products (such as LIQ861 and LIQ865) based on presently commercialized drug products. The Company has not commenced commercialization of its pharmaceutical drug products and has not recognized any revenues to date. The Company intends to commercialize LIQ861 independently in the United States and intends to evaluate its commercialization and development plans for LIQ865. Revenues from these licensing arrangements would be recognized in this segment. In addition, if LIQ861 or LIQ865 are approved for marketing, the Company expects to recognize any revenues from sales of that product in this segment.

Partnering and Licensing — The Company utilizes its proprietary PRINT technology to enable the development of drug products by other pharmaceutical companies. The Company assists these customers in the development of their drug products through research and development services like particle formulation and manufacturing at market billing rates. The Company also typically receives up-front fees or technology access payments and milestone payments for each phase of clinical achievement. If these drug products achieve commercialization, the Company also expects to be eligible to receive royalties from the sale of their drug products.

For the years ended December 31, 2016 and 2017, the majority of the Company's revenue from collaborating and licensing was derived from two separate agreements with GSK, namely the GSK Vaccines Collaboration and Option Agreement and the GSK Inhaled Collaboration and Option Agreement. The arrangements with GSK accounted for $11,827,426 and $6,114,311, representing 90% and 84% of total revenue for the years ended December 31, 2016 and 2017, respectively. This revenue was comprised of billings for research and development services, milestone payments and amortization of deferred revenue from up-front payments.

The Company revised its segment reporting to reflect changes in the way the Chief Operating Decision Maker ("CODM") viewed the business. These changes were in the organizational structure and accountability over certain unallocated and general research and development costs that were not directly related to a particular segment. Further, the Specialty Pharmaceutical segment was renamed the Pharmaceutical Products segment to better reflect its activities. The segment data is reflected below for the years ended December 31, 2016 and 2017, as follows:

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

2. Significant Accounting Policies (Continued)

	2016	2017
Revenues:		
Pharmaceutical Products	$ —	$ —
Partnering and Licensing	13,216,989	7,258,123
Total	$ 13,216,989	$ 7,258,123
Operating (loss) income:		
Pharmaceutical Products	$ (15,444,224)	$ (13,625,296)
Partnering and Licensing	7,672,946	2,303,622
Corporate / Operations	(8,091,525)	(16,706,612)
Total	(15,862,803)	(28,028,286)
Interest income	14,906	268
Interest expense	(85,865)	(13,010,475)
Derivative and warrant fair value adjustments	—	11,884,253
Net loss	$ (15,933,762)	$ (29,154,240)

Segment information by asset is not disclosed as it is not reviewed by the CODM or used to allocate resources or to assess the Company's operating results and financial performance. All long-lived assets are domiciled within the United States and all revenues were earned within the United States.

Research and Development Expense

Research and development costs are expensed as incurred and include direct costs incurred to third parties related to the salaries of, and stock-based compensation for, personnel involved in research and development activities, contractor fees, grant expenses, administrative expenses and allocations of research-related overhead costs. Administrative expenses and research-related overhead costs included in research and development expense consist of allocations of facility and equipment lease charges, depreciation and amortization of assets and insurance directly related to research and development activities.

Patent Maintenance

Liquidia is responsible for all patent costs, past and future, associated with the preparation, filing, prosecution, issuance, maintenance, enforcement and defense of United States patent applications. Such costs are recorded as general and administrative expenses as incurred. To the extent that the Company's licensees share these costs, such benefit is recorded as a reduction of the related expenses.

Stock-Based Compensation

The Company accounts for stock-based compensation under the provisions of ASC 718, *Compensation — Stock Compensation* ("ASC 718"), which requires the measurement and recognition of compensation

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

2. Significant Accounting Policies (Continued)

expense for all share-based payment awards made to employees and directors, including employee stock options, based on estimated fair values. ASC 718 requires companies to estimate the fair value of share-based awards on the grant date using an option pricing model. The value of the portion of the award that is ultimately expected to vest is recorded as expense over the requisite service periods in the Company's Statements of Operations and Comprehensive Loss.

The Company accounts for equity instruments issued to nonemployees in accordance with the provisions of ASC 505-50, *Equity-Based Payments to Non-Employees*, under which the stock-based compensation expense is recognized in the financial statements based on their grant date fair values. The Company values equity instruments, stock options and warrants for common stock granted to lenders and consultants using the Black-Scholes option pricing model. The measurement of non-employee stock-based compensation is recognized as an expense over the term of the related financing or the period over which services are received.

Defined Contribution Retirement Plan

The Company maintains a defined contribution 401(k) retirement plan for its employees, pursuant to which employees who have completed sixty days of service may elect to contribute a portion of their compensation on a tax-deferred basis up to the maximum amount permitted by the Internal Revenue Code, as amended. The Company provides a 4% matching contribution to eligible employee contributions. Matching contributions are made subsequent to the year to which they relate. The Company's matching contributions due were $358,037 and $377,623 and were included in Accrued Expenses in the accompanying Balance Sheets as of December 31, 2016 and 2017, respectively.

Net Loss Per Share

Basic net loss per share is computed by dividing the net loss by the weighted average number of common shares outstanding during the period.

Diluted net loss per share is computed by dividing net loss by the weighted average number of common shares adjusted for the dilutive effect of common equivalent shares outstanding during the period. Common stock equivalents consist of preferred stock, stock options and stock warrants. Net loss per share attributable to common stockholders is calculated using the two-class method, which is an earnings allocation formula that determines net loss per share for the holders of the Company's common shares and participating securities. The Company's convertible preferred stock contains participating rights in any dividend paid by the Company and are deemed to be participating securities. Net loss attributable to common stockholdres and participating preferred shares are allocated to each share on an as-converted basis as if all of the earnings for the period had been distributed. The participating securities do not include a contractual obligation to share in the losses of the Company and are not included in the calculation of net loss per share in the periods that have a net loss. Common equivalent shares are excluded from the computation in periods in which they have an anti-dilutive effect on net loss per share.

Diluted net loss per share is computed using the more dilutive of (a) the two-class method or (b) the if-converted method. In periods in which the Company reports a net loss attributable to common stockholders, diluted net loss per share attributable to common stockholders is the same as basic net loss per share attributable to common stockholders since dilutive common shares are not assumed to have been

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

2. Significant Accounting Policies (Continued)

issued if their effect is anti-dilutive. Diluted net loss per share is equivalent to basic net loss per share for all years presented herein because common stock equivalent shares from unexercised stock options, outstanding warrants, preferred stock and common shares expected to be issued under the Company's employee stock purchase plan were anti-dilutive. Due to their dilutive effect, the calculation of diluted net loss per share for the years ended December 31, 2016 and 2017 does not include the following common stock equivalent shares:

	2016	2017
Preferred Stock	64,165,785	76,440,945
Stock Options	12,106,088	8,368,728
Warrants	271,746	4,699,565
Total	76,543,619	89,509,238

For the years ended December 31, 2016 and 2017, there were no reconciling items between Basic and Diluted loss per share.

In February 2018, the Company received proceeds of $25.6 million in exchange for the corresponding sale of Series D Preferred Stock ("Series D") and related rights offering to new and existing investors. The applicable issue price per share for the Series D preferred stock was $0.59808, subject to adjustment as provided in the certificate of incorporation. In addition, all outstanding convertible notes, plus accrued interest, totaling $28.9 million were converted into Series D preferred stock at the same price per share without a discount. In total, 91,147,482 shares of Series D preferred stock were issued. These shares are also excluded from the per share calculations since they were not issued prior to the end of the year and they are anti-dilutive.

Fair Value of Financial Instruments

The carrying values of cash, accounts receivable, accounts payable and related party receivables at December 31, 2016 and 2017 approximated fair value due to the short maturity of these instruments.

The Company's valuation of financial instruments is based on a three-tiered approach, which requires that fair value measurements be classified and disclosed in one of three tiers. The fair value hierarchy defines a three-level valuation hierarchy for disclosure of fair value measurements as follows:

Level 1 — Quoted prices in active markets for identical assets or liabilities;

Level 2 — Other than quoted prices included in Level 1 inputs that are observable for the asset or liability, either directly or indirectly; and

Level 3 — Unobservable inputs for the asset and liability used to measure fair value, to the extent that observable inputs are not available.

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

2. Significant Accounting Policies (Continued)

The categorization of a financial instrument within the valuation hierarchy is based upon the lowest level of input that is significant to the fair value measurement.

The following tables present the placement in the fair value hierarchy of financial instruments measured at fair value as of December 31, 2016 and 2017:

	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Carrying Value
December 31, 2016				
Pacific Western Bank Tranche I note	$ —	$ 2,998,267	$ —	$ 3,000,000
Pacific Western Bank Tranche II note	—	2,995,536	—	3,000,000
UNC promissory note	—	2,216,337	—	2,216,337
Total	$ —	$ 8,210,140	$ —	$ 8,216,337

	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Carrying Value
December 31, 2017				
Pacific Western Bank Tranche I note	$ —	$ 2,512,301	$ —	$ 2,488,572
Pacific Western Bank Tranche II note	—	2,845,194	—	2,820,382
Pacific Western Bank Tranche III note	—	3,793,644	—	3,760,509
UNC promissory note	—	2,257,684	—	2,257,684
Convertible notes	—	—	28,702,268	9,837,984
Warrant liabilities	—	—	2,462,859	2,462,859
Total	$ —	$ 11,408,823	$ 31,165,127	$ 23,627,990

The fair value of debt was measured as the present value of the respective future cash outflows discounted at a current interest rate as of the year-end date, taking into account the remaining term of liabilities.

Convertible Instruments

The Company has utilized various types of financing to fund its business needs, including convertible debt and convertible preferred stock, in some cases with corresponding warrants. The Company considered guidance within FASB ASC 470-20, *Debt with Conversion and Other Options*, ("ASC 470-20"), ASC 480, *Distinguishing Liabilities from Equity* ("ASC 480") and ASC 815, *Derivatives and Hedging* ("ASC 815"), when accounting for the issuance of convertible securities. Additionally, the Company reviews the instruments to determine whether they are freestanding or contain an embedded derivative and, if so, whether they should be classified in permanent equity, mezzanine equity or as a liability at each reporting period until the amount is settled and reclassified into equity.

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

2. Significant Accounting Policies (Continued)

When multiple instruments are issued in a single transaction, the Company allocates total proceeds from the transaction among the individual freestanding instruments identified. The allocation is made after identifying all the freestanding instruments and the subsequent measurement basis for those instruments. The subsequent measurement basis determines how the proceeds are allocated. Generally, proceeds are allocated based on one of the following methods:

- Fair value method — The instrument being analyzed is allocated a portion of the proceeds equal to its fair value, with the remaining proceeds allocated to the other instruments as appropriate.
- Relative fair value method — The instrument being analyzed is allocated a portion of the proceeds based on the proportion of its fair value to the sum of the fair values of all the instruments covered in the allocation.
- Residual value method — The instrument being analyzed is allocated the remaining proceeds after an allocation is made to all other instruments covered in the allocation.

Generally, when there are multiple instruments issued in a single transaction that have different subsequent measurement bases, the proceeds from the transaction are first allocated to the instrument that is subsequently measured at fair value (i.e., instruments accounted for as a derivative liabilities) at its issuance date fair value, with the residual proceeds allocated to the instrument not subsequently measured at fair value. In the event both instruments in the transaction are not subsequently measured at fair value (i.e., equity-classified instruments), the proceeds from the transaction are allocated to the freestanding instruments based on their respective fair values, using the relative fair value method.

After the proceeds are allocated to the freestanding instruments, resulting in an initial discount on the host contract, those instruments are further evaluated for embedded features (i.e., conversion options) that require bifurcation and separate accounting as a derivative financial instrument pursuant to ASC 815. Embedded derivatives are initially and subsequently measured at fair value. Under ASC 815, a portion of the proceeds received upon the issuance of the hybrid contract is allocated to the fair value of the derivative.

The Company accounts for convertible instruments in which it is determined that the embedded conversion options should not be bifurcated from their host instruments in accordance with ASC 470-20. Under ASC 470-20, the Company records, when necessary, discounts to convertible notes or convertible preferred stock for the intrinsic value of conversion options embedded in the convertible instruments based upon the differences between the fair value of the underlying common stock at the commitment date of the transaction and the effective conversion price embedded in the convertible instrument, unless limited by the proceeds allocated to such instrument.

Warrant Liabilities

The Company has classified warrants to purchase shares of Series C-1 preferred stock as a liabilities on its Balance Sheets as these warrants were free-standing financial instruments that will require the Company to issue convertible securities upon exercise. The warrants were initially recorded at fair value on date of grant, and they will be subsequently remeasured to fair value at each reporting period. Changes in fair value of the warrants are recognized as a component of other income (expense) in the Statements of Operations and Comprehensive Loss. The Company will continue to adjust the liabilities for changes in fair value at each reporting period until the warrant liabilities are settled. Following an Initial Public Offering ("IPO") and the

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

2. Significant Accounting Policies (Continued)

conversion of preferred stock into common stock, the Company will no longer include the warrant liabilities on the Balance Sheet or recognize changes in their fair value on the Statements of Operations and Comprehensive Loss.

The Company used the Black-Scholes option pricing model, which incorporates assumptions and estimates, to value the preferred stock warrants. The Company assessed these assumptions and estimates on a quarterly basis as additional information impacting the assumptions was obtained. Estimates and assumptions impacting the fair value measurement included the fair value per share of the underlying Series C-1 preferred stock, the remaining contractual term of the warrant, the risk-free interest rate, the expected dividend yield and the expected volatility of the price of the underlying preferred stock. The Company determined the fair value per share of the underlying preferred stock by taking into consideration the most recent sales of its convertible preferred stock, results obtained from third-party valuations and additional factors that were deemed relevant. The Company estimated its expected stock volatility based on the historical volatility of publicly traded peer companies for a term equal to the remaining contractual term of the warrant. The risk-free interest rate was determined by reference to the U.S. Treasury yield curve for time periods approximately equal to the remaining contractual term of the warrant. Expected dividend yield was based on the fact that the Company has never paid cash dividends and does not expect to pay any cash dividends in the foreseeable future.

Embedded Derivatives

Embedded derivatives that are required to be bifurcated from the underlying instrument are accounted for and valued as a separate financial instrument. In conjunction with the Company's Convertible Instruments, embedded derivatives exist associated with the future consummation of a qualified financing event, as defined, and a subsequent discounted conversion of the instrument to capital stock. The embedded derivatives are bifurcated and classified as derivative liabilities on the Balance Sheets and separately adjusted to their fair values at the end of each reporting period. Changes in fair values of the derivative liabilities are recognized as a component of other income (expense) in the Statements of Operations and Comprehensive Loss.

Issuance Costs Related to Equity and Debt

The Company allocates issuance costs between the individual freestanding instruments identified on the same basis as proceeds were allocated. Issuance costs associated with the issuance of stock or equity contracts (i.e., equity-classified warrants and convertible preferred stock) are recorded as a charge against the gross proceeds of the offering. Any issuance costs associated with the issuance of liability-classified warrants are expensed as incurred. Issuance costs associated with the issuance of debt (i.e., convertible debt) is recorded as a direct reduction of the carrying amount of the debt liability, but limited to the notional value of the debt. The Company accounts for debt as liabilities measured at amortized cost and amortizes the resulting debt discount to interest expense using the straight-line method over the expected term of the notes pursuant to ASC 835, *Interest* ("ASC 835"). To the extent that the reduction from issuance costs of the carrying amount of the debt liability would reduce the carrying amount below zero, such excess is recorded as interest expense.

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

2. Significant Accounting Policies (Continued)

Income Taxes

The asset and liability method is used in the Company's accounting for income taxes. Under this method, deferred tax assets and liabilities are determined based on differences between financial reporting and tax bases of assets and liabilities and are measured using the enacted tax rates and laws that are expected to be in effect when the differences are expected to reverse. The Company records a valuation allowance against deferred tax assets when realization of the tax benefit is uncertain.

A valuation allowance is recorded, if necessary, to reduce net deferred taxes to their realizable values if management does not believe it is more likely than not that the net deferred tax assets will be realized.

The Company may recognize the tax benefit from an uncertain tax position only if it is more likely than not that the tax position will be sustained on examination by the taxing authorities based on the technical merits of the position. The tax benefits recognized in the financial statements from such a position are measured based on the largest benefit that has a greater than 50% likelihood of being realized upon ultimate settlement.

Recent Accounting Pronouncements

In May 2014, the FASB issued ASU 2014-09, *Revenue from Contracts with Customers* ("ASU 2014-09"). The FASB issued ASU 2014-09 to clarify the principles for recognizing revenue and to develop a common revenue standard for U.S. GAAP. The standard outlines a single comprehensive model for entities to use in accounting for revenue arising from contracts with customers and supersedes the most current revenue recognition guidance. This guidance was originally effective for annual periods and interim periods within those annual periods beginning after December 15, 2016 and early adoption was not permitted. In August 2015, the FASB issued ASU 2015-14, *Revenue from Contracts with Customers (Topic 606) — Deferral of the Effective Date* ("ASU 2015-14"), which deferred the effective date of the guidance in ASU 2014-09 by one year to December 15, 2017 for interim and annual reporting periods beginning after that date and permitted early adoption of the standard, but not before the original effective date of December 15, 2016. This standard will be effective for the Company for the year ending December 31, 2018. In 2016, the FASB clarified the implementation guidance on principal versus agent, identifying performance obligations, licensing, narrow-scope improvements, practical expedients, and to expedite improvements to 2014-09 by issuing ASU 2016-08, *Revenue from Contracts with Customers (Topic 606) — Principal versus Agent Considerations* ("ASU 2016-08"), ASU 2016-10, *Revenue from Contracts with Customers (Topic 606) — Identifying Performance Obligations and Licensing* ("ASU 2016-10"), ASU 2016-12, *Revenue from Contracts with Customers (Topic 606) — Narrow-Scope Improvements and Practical Expedients* ("ASU 2016-12"), and ASU 2016-20, *Technical Corrections and Improvements to Topic 606, Revenue from Contacts with Customers* ("ASU 2016-20"). The Company will adopt this standard as of January 1, 2018 and will apply the modified retrospective method. Under this adoption method, the Company will record a cumulative adjustment to retained earnings at January 1, 2018 and apply the provisions of the ASU prospectively. The Company believes this ASU will have an impact on, but not limited to, how it identifies performance obligations for its collaborative agreements and accounts for non-refundable milestones and up-front payments. This ASU will also require new comprehensive disclosures about contracts with customers, including the significant judgments the Company has made when applying the ASU. The Company has engaged a third party specialist to assist in determining the impact and application of the ASU and management is in the process of assessing the results. The Company will finalize its accounting assessment and quantitative impact of the adoption during the first quarter of fiscal year 2018, as required.

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

2. Significant Accounting Policies (Continued)

In August 2014, the FASB issued ASU 2014-15, *Presentation of Financial Statements — Going Concern* (Subtopic 205-40) in which management should evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the entity's ability to continue as a going concern within one year after the date that the financial statements are issued (or within one year after the date that the financial statements are available to be issued when applicable). When management identifies conditions or events that raise substantial doubt about an entity's ability to continue as a going concern, management should assess whether its plans that are intended to mitigate those relevant conditions or events will alleviate the substantial doubt. This update is effective for annual periods ending after December 15, 2016, and early application is permitted for any annual or interim period thereafter. The Company adopted this standard effective as of January 1, 2016. Refer to Note 2 for the related disclosure.

In January 2016, the FASB issued ASU 2016-01, *Financial Instruments — Overall (Subtopic 825-10) — Recognition and Measurement of Financial Assets and Financial Liabilities* ("ASU 2016-01"). The provisions of ASU 2016-01 make targeted improvements to enhance the reporting model for financial instruments to provide users of financial statements with more useful information, including certain aspects of recognition, measurement, presentation and disclosure of financial instruments. The guidance is effective for public companies with annual periods and interim periods within those annual periods beginning after December 15, 2017, and is expected to be effective for the Company for the year ending December 31, 2018. The Company will be adopting this standard for the year ending December 31, 2018. The adoption of this standard is not expected to have a material impact on the Company's financial statements.

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842)* ("ASU 2016-02"). The provisions of ASU 2016-02 set out the principles for the recognition, measurement, presentation and disclosure of leases for both lessees and lessors. The new standard requires lessees to apply a dual approach, classifying leases as either finance or operating leases based on the principle of whether or not the lease is effectively a financed purchase by the lessee. This classification will determine whether lease expense is recognized based on an effective interest method or on a straight-line basis over the term of the lease. A lessee is also required to record a right-of-use asset and a lease liability for all leases with a term of greater than 12 months regardless of their classification. Leases with a term of 12 months or less will be accounted for in a similar manner as under existing guidance for operating leases. ASU 2016-02 supersedes the previous lease standard, Topic 840, *Leases*. The guidance is effective for public companies with annual periods and interim periods within those annual periods beginning after December 15, 2018, and is expected to be effective for the Company for the year ending December 31, 2019. The Company is currently evaluating the impact that the implementation of this standard will have on the Company's financial statements.

In March 2016, the FASB issued ASU No. 2016-09, *Stock Compensation* (Topic 718), which includes provisions intended to simplify various aspects related to how share-based payments are accounted for and presented in the financial statements. The standard is effective for annual periods beginning after December 15, 2016. During the first quarter of 2017, the Company adopted this ASU. The key effects of the adoption on the Company's financial statements include that the Company will now recognize windfall tax benefits as deferred tax assets instead of tracking the windfall pool and recording such benefits in equity. Additionally, the Company has elected to continue to estimate forfeitures at the time of grant rather than as they occur. Adoption of this standard did not have a material impact on our financial statements.

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

2. Significant Accounting Policies (Continued)

In August 2016, the FASB issued ASU 2016-15, *Statement of Cash Flows (Topic 230) — Classification of Certain Cash Receipts and Cash Payments* ("ASU 2016-15"). The provisions of ASU 2016-15 address eight specific cash flow issues and how those certain cash receipts and cash payments are presented and classified in the statement of cash flows under Topic 230, *Statement of Cash Flows*, and other Topics. The guidance is effective for public companies with annual periods and interim periods within those annual periods beginning after December 15, 2017, with early adoption permitted, and is expected to be effective for the Company for the year ending December 31, 2018. The adoption of this standard is not expected to have a material impact on the Company's financial statements.

In May 2017, the FASB issued ASU 2017-09, *Compensation-Stock Compensation* (Topic 718): Scope of Modification Accounting, which clarifies when to account for a change to the terms or conditions of a share-based payment award as a modification. Under the new guidance, modification accounting is required only if the fair value, the vesting conditions, or the classification of the award (as equity or liability) changes as a result of the change in terms or conditions. The standard is effective for interim and annual reporting periods beginning after December 15, 2017, with early adoption permitted. The adoption of this standard is not expected to have a material impact on the Company's financial statements.

In July 2017, the FASB issued ASU 2017-11, *Earnings Per Share* (Topic 260), Distinguishing Liabilities from Equity (Topic 480) and Derivatives and Hedging (Topic 815): I. Accounting for Certain Financial Instruments with Down Round Features; II. Replacement of the Indefinite Deferral for Mandatorily Redeemable Financial Instruments of Certain Nonpublic Entities and Certain Mandatorily Redeemable Noncontrolling Interests with a Scope Exception. Part I of this update addresses the complexity of accounting for certain financial instruments with "down round" features. Down round features are features of certain equity-linked instruments (or embedded features) that result in the strike price being reduced on the basis of the pricing of future equity offerings. Current accounting guidance creates cost and complexity for entities that issue financial instruments (such as warrants and convertible instruments) with down round features that require fair value measurement of the entire instrument or conversion option. Part II of this update addresses the difficulty of navigating Topic 480, *Distinguishing Liabilities from Equity*, because of the existence of extensive pending content in the FASB Accounting Standards Codification. This pending content is the result of the indefinite deferral of accounting requirements about mandatorily redeemable financial instruments of certain nonpublic entities and certain mandatorily redeemable noncontrolling interests. The amendments in Part II of this update do not have an accounting effect. This ASU is effective for fiscal years, and interim periods within those years, beginning after December 15, 2018. The Company is evaluating the effect that ASU 2017-11 will have on its financial statements and related disclosures.

3. Common and Preferred Stock

Authorized Capital

As of December 31, 2017, in connection with the issuances of convertible notes during 2017, the authorized capital was increased to 291,862,657 shares of capital stock, $0.001 par value per share, of which 175,000,000 shares were designated as Class A voting common stock ("Class A"), 330,664 shares were designated as Class B nonvoting common stock ("Class B") and 116,531,993 shares were designated as preferred stock. Of the designated preferred stock, 1,974,430 shares were designated as Series A Preferred Stock ("Series A"), 1,834,862 shares were designated as Series A-1 Preferred Stock ("Series A-1"), 4,620,123 shares were designated as Series B Preferred Stock ("Series B"),

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

3. Common and Preferred Stock (Continued)

17,102,578 shares were designated as Series C Preferred Stock ("Series C") and 91,000,000 shares were designated as Series C-1 Preferred Stock ("Series C-1").

In June 2015, the Board approved an extension of the term of the Liquidia Technologies, Inc. Stock Option Plan (the "2004 Plan") by two additional years and an expansion of the pool of available shares by 5,000,000 shares, of which 3,374,000 were approved for grant to existing management. The Company had reserved a total of 18,299,642 shares of Class A Voting common stock for issuance under the 2004 Plan.

In May 2016, the Board approved a new second stock option plan (the "2016 Plan"). The option pool of shares available to issue under the 2016 Plan was established as 1,400,000 shares. Of this amount, 524,887 shares are available for future stock option grants as of December 31, 2017.

In January and February 2017, the Company entered into a series of Convertible Note and Warrant Purchase Agreements and issued an aggregate total of $11.8 million in principal amount of unsecured convertible promissory notes (the "January and February Notes") bearing interest at a rate of 8% per annum with a maturity date of December 31, 2018 (amended from June 30, 2018 in May 2017). This financing included warrants to purchase a total of 3,698,128 shares of the Company's Series C-1 Preferred Stock. The January and February Notes were issued to current and new stockholders of the Company. Since this transaction contained equity and debt components, a fair value measurement of the financial instruments that represent additional obligations was conducted. The fair value of the warrants and other embedded financial instruments as of the date of issuance of the convertible promissory notes are recorded separately from the underlying convertible notes (see Note 11).

In July 2017, the Company entered into a series of unsecured convertible note agreements of $10.4 million in the aggregate (the "July Notes"). The July Notes bear interest at a rate of 8% per annum with a maturity date of December 31, 2018. Principal plus accrued interest convert into either preferred or common stock at the time of a qualified financing, as defined, at a discount to the share price, depending on the financing. In conjunction with the July Notes, the Company also entered into a commitment with an advisor in the form of a convertible note amounting to $442,356 with terms similar to the related transaction, which is included in the aggregate amount of July Notes.

In November 2017, the Company issued a series of unsecured subordinated convertible notes with an aggregate principal amount of $5.2 million to new investors (the "November Notes"). The November Notes bear interest at a rate of 8% per annum with a maturity date of December 31, 2018. Principal plus accrued interest convert into either preferred or common stock at the time of a qualified financing, as defined, at a discount to the share price, depending on the type of financing.

In February 2018, the Company received proceeds of $25.6 million in exchange for the corresponding sale of Series D Preferred Stock ("Series D") and related rights offering to new and existing investors. The applicable issue price per share for the Series D preferred stock was $0.59808, subject to adjustment as provided in the certificate of incorporation. In addition, all outstanding convertible notes, plus accrued interest, totaling $28.9 million were converted into Series D preferred stock at the same price per share without a discount. In total, 91,147,482 shares of Series D preferred stock were issued. Each share of Series D preferred stock is voting and is convertible at any time into a share of Class A voting common stock with such conversion ratio subject to future adjustment. Conversion is automatic upon a qualified financing, as defined. Each series of preferred stock has anti-dilution protection in the event of a dilutive

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

3. Common and Preferred Stock (Continued)

issuance, as defined in the certificate of incorporation. The Series D stock bears an 8% per annum noncumulative dividend ($0.0478 per Series D preferred share) when and if declared. The Series D has a liquidation preference equal to the aggregate of the proceeds and the note conversions, or $54.5 million plus accrued but unpaid dividends, after which holders of Series D participate with all other stockholders in the remainder of liquidation proceeds on an as converted basis. The Series D is senior to all other series of preferred stock.

In conjunction with the Series D financing, the authorized capital was increased such that following this financing, the Company is authorized to issue 449,540,280 shares of capital stock, $0.001 par value per share, of which 265,000,000 shares are designated as Class A, 330,664 shares are designated as Class B and 184,209,616 are designated as preferred stock, of which 1,974,430 shares are designated as Series A, 1,834,862 shares are designated as Series A-1, 4,620,123 shares are designated as Series B, 17,102,578 shares are designated as Series C, 21,254,306 shares are designated as Series C-1, and 137,423,317 shares are designated as Series D.

Common Stock

Upon any voluntary or involuntary liquidation, dissolution or winding up of the affairs of the Company, the holders of the Class A voting common stock shall be entitled to receive that portion of the remaining funds to be distributed to the stockholders, subject to the liquidation preferences of the preferred stock, on a pro-rata basis with the holders of the Class B nonvoting common stock. Such funds shall be paid to the holders of the Class A voting common stock and Class B nonvoting common stock on the basis of the number of shares so held by each of them.

The Class B nonvoting common stock has mandatory conversion provisions (one-for-one) into Class A voting common stock, as declared by the Board of Directors and approved by the holders of a majority of the then issued and outstanding shares of Class A voting common stock, or immediately prior to an IPO.

Preferred Stock

The following summarizes the significant terms of existing Preferred Stock as of December 31, 2017:

Each share of preferred stock is voting and is convertible at any time into voting common stock at the applicable conversion ratio. Conversion is automatic upon the earlier of a qualified financing, such as an IPO of at least $35 million and a price per share that exceeds $0.71767 pursuant to a registration statement on Form S-1 under the Securities Act of 1933, as amended, or upon the vote of a majority of the outstanding Series C and C-1 preferred stock on an as-if-converted basis to Class A common stock. Each series of preferred stock has anti-dilution protection in the event of a dilutive issuance, as defined in the certificate of incorporation. As a result of prior anti-dilution adjustments, the conversion ratio for the Series A, Series A-1, Series B, Series C and Series C-1 preferred stock was adjusted to 1.4814-for-1, 2.1351-for-1, 2.1913-for-1, 2.0058-for-1, and 1.0942-for-1, respectively, as of December 31, 2017. As a result of the Series D financing in February 2018, the conversion ratios were modified for anti-dilution adjustments such that the conversion ratio for the Series A, Series A-1, Series B, Series C and Series C-1 preferred stock was adjusted to 1.6087 for 1, 2.3185 for 1, 2.3795 for 1, 2.1781 for 1, and 1.1882-for-1, respectively. The conversion ratio for Series D was 1 for 1 at the time of closing.

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

3. Common and Preferred Stock (Continued)

Each series of preferred stock bears an 8% per annum noncumulative dividend when and if declared, or $0.1064 per Series A preferred share, $0.2616 per Series A-1 preferred share, $0.2847 per Series B preferred share, $0.1169 per Series C preferred share, $0.0638 per Series C-1 preferred share, and $0.0478 per Series D preferred share. Through December 31, 2017, no dividends have been declared on any preferred stock nor have any been accrued. Each series of preferred stock has a liquidation preference to the holders of common stock equal to the original purchase price plus declared but unpaid dividends. The Series D preferred stock is senior to all other series of preferred stock. The Series C and C-1 preferred stock, on a pari passu basis, are senior to the Series B, Series A and Series A-1 preferred stock. The Series B preferred stock is senior to the Series A and Series A-1 preferred stock, and the Series A-1 preferred stock is senior to the Series A preferred stock. Following payment of the liquidation preference, remaining proceeds are shared ratably between the common stockholders and the Series A, Series A-1, Series B, Series C and Series C-1 preferred stockholders on an as-converted basis until the holders of the Series A, Series A-1, Series B, Series C and Series C-1 preferred stockholders have received two times the applicable issue price plus accrued but unpaid dividends. The applicable issue price for the Series A, Series A-1, Series B, Series C and Series C-1 preferred stock is $1.33, $3.27, $3.558, $1.46177 and $0.79744, respectively, subject to adjustment as defined in the certificate of incorporation. The aggregate liquidation preferences of the Series A, Series A-1, Series B, Series C and Series C-1 preferred stock totaled $2,625,992, $6,000,000, $16,000,000, $25,000,035 and $14,000,000 at December 31, 2017, respectively. The liquidation preference of Series D is $54,513,495.

Warrants

In connection with historical private placement offerings, the Company issued warrants to purchase its preferred stock with an exercise term of ten years from the date of issuance. Pursuant to the terms of the warrants, upon the conversion of the preferred stock underlying the warrant into common stock, the warrants automatically become exercisable for common stock based upon the conversion ratio of the underlying preferred stock. At December 31, 2017, the Company had 123,215 share purchase warrants outstanding for Series B Preferred stock with an exercise price of $3.56 per share expiring March 28, 2018.

The warrants for 123,215 shares of Series B preferred stock convert into warrants for 293,951 shares of Class A common stock at the same time as all outstanding Series B preferred shares have been converted to Class A common stock. During the year ended December 31, 2017, 20,000 warrants were exercised for the purchase of common stock for total proceeds of $10,000. The Company did not record any stock-based compensation expense pertaining to the warrants during the years ended December 31, 2016 and 2017. All outstanding warrants are currently exercisable.

The January and February Notes financing included warrants to purchase a total of 3,698,128 shares of the Company's Series C-1 preferred stock at an initial exercise price of $.79744 per share, subject to adjustments related to achieving future financing milestones, as defined. As of December 31, 2017, the warrants for 3,698,128 shares of Series C-1 preferred stock convert into warrants for 4,405,614 shares of Class A common stock at the same time as all outstanding Series C-1 preferred shares have been converted to Class A common stock. In August 2017, as a result of the financing milestones not being achieved, the exercise price of the Series C-1 warrants was reduced to $0.001 per share.

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

3. Common and Preferred Stock (Continued)

The Series C-1 and Series B convertible preferred stock will automatically convert into common stock immediately prior to the closing of an IPO of the Company's stock, if such warrants have not previously expired.

4. Stock Options

In November 2004, the Board of Directors adopted, and the stockholders approved, the Plan to create an additional incentive for employees, directors, consultants and advisors. The Plan authorized the issuance of stock options to be granted as incentive stock options along with nonqualified stock options, restricted stock and other stock-based awards. The Board of Directors determines the exercise price of all options granted. The options vest based on terms provided for in the individual stock option agreements issued pursuant to the 2004 Plan. Options generally vest on a monthly basis over a period of up to 4 years and have a contractual life of ten years. The 2016 Plan is the successor to the 2004 Plan. The terms of the 2016 Plan are similar to the 2004 Plan. The 2016 Plan provides for accelerated vesting under certain change of control transactions.

Determining the appropriate fair value model and the related assumptions requires judgment. The fair value of each option grant is estimated using a Black-Scholes option pricing model. The following table summarizes the assumptions used for estimating the fair value of stock options granted during:

	Year Ended December 31,	
	2016	2017
Expected dividend yield	0%	0%
Risk-free interest rate	1.34% - 2.013%	1.344% - 1.988%
Volatility	72% - 98%	69% - 100%
Expected life	6.25 years	6.25 years
Weighted-average fair value per share	$0.29	$0.83

The Company considers many factors when estimating expected forfeitures, including the employee or consultant class and historical experience. The Company does not maintain an internal market for its shares, and its shares are not traded privately or publicly. Therefore, the Company estimates volatility based upon the identification of similar public entities for which option price information is available to consider the historical, expected or implied volatility of those entities' share prices in estimating the Company's expected volatility. The expected term of options and warrants granted represents the period that options and warrants granted are expected to be outstanding. The risk-free interest rate for periods within the contractual life of the option and warrant is based on the yield of the U.S. Treasury securities at the time of grant. The Company amortizes the fair value, net of estimated forfeitures, over the remaining vesting term on a straight-line basis.

The weighted-average grant date price per share was $0.40 and $1.21 per share for the shares issued during the years ended December 31, 2016 and 2017, respectively.

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

4. Stock Options (Continued)

The intrinsic value of options exercised was $592,521 and $222,172 for the years ended December 31, 2016 and 2017, respectively. At December 31, 2017, the intrinsic value of options and warrants outstanding and exercisable was $655,709. The weighted average remaining contractual term of options and warrants outstanding and exercisable is 5.89 years as of December 31, 2017.

The following table summarizes stock option activity under the 2004 Plan and the 2016 Plan:

	Shares Available for Issuance	Options Outstanding	Weighted Average Exercise Price
Outstanding at December 31, 2015	716,040	14,275,613	$ 0.23
Shares reserved for future issuance	1,149,475	—	—
Granted	(1,513,373)	1,513,373	$ 0.40
Exercised	—	(3,123,153)	$ 0.16
Cancelled/expired	409,745	(409,745)	$ 0.28
Outstanding at December 31, 2016	761,887	12,256,088	$ 0.26
Shares reserved for future issuance	—	—	—
Granted	(237,000)	237,000	$ 1.21
Exercised	—	(255,268)	$ 0.34
Cancelled/expired	—	(991,835)	$ 0.13
Outstanding at December 31, 2017	524,887	11,245,985	$ 0.27

The following summarizes certain information about stock options vested and expected to vest as of December 31, 2017:

	Number of Options	Weighted-Average Remaining Contractual Life (In Years)	Weighted-Average Exercise Price
Outstanding and expected to vest	10,714,531	5.89	$ 0.27
Vested and exercisable	8,459,019	5.03	$ 0.27

During the year ended December 31, 2016, 3,123,153 stock options were exercised for the purchase of common stock for total proceeds of $500,468. The intrinsic value for the options exercised approximated $592,521. During the year ended December 31, 2017, 255,268 stock options were exercised for the purchase of common stock for total proceeds of $86,703. The intrinsic value for the options exercised was $222,172.

During 2016 and 2017, stock-based compensation expense for employee stock option awards totaled $347,444 and $514,092, respectively. As of December 31, 2017, there was $968,372 of total unrecognized compensation cost related to non-vested stock option grants, which is expected to be recognized over a weighted-average period of 1.60 years.

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

5. License Agreements

Liquidia performs research under a license agreement with the UNC as amended to date, ("UNC Letter Agreement"). As part of the UNC Letter Agreement, Liquidia holds an exclusive license to certain research and development technologies and processes in various stages of patent pursuit, for use in its research and development and commercial activities, with a term until the expiration date of the last to expire patent subject to the UNC Letter Agreement, subject to industry standard diligence milestones. Under the UNC Letter Agreement, Liquidia is obligated to pay UNC royalties equal to a low single-digit percentage of all net sales of Liquidia drug products whose manufacture, use or sale includes any use of the technology or patent rights covered by the UNC Letter Agreement. Liquidia may grant sublicenses of UNC licensed intellectual property in return for specified payments based on a percentage of any fee, royalty or other consideration received.

In connection with the development and collaboration agreements (see Note 6) entered into with GSK in June 2012, Liquidia paid sublicense fees to UNC and amortized each into research and development expense over the period of specific performance with GSK. Also in connection with that sublicense fee, Liquidia agreed to issue $1,200,000 of Series C-1 preferred shares to UNC under the same terms provided to other Series C-1 holders and an unsecured promissory note for $600,000. Refer to Note 11 for additional details on the unsecured promissory note.

In 2012 and 2015, GSK Vaccines and GSK Inhaled made up-front payments to the Company of $14,000,000 and $20,000,000 combined, respectively. On such payments, the Company incurred sublicense fees to UNC of $2,800,000 and $2,500,000, respectively, which are being amortized into Cost of Sales in the accompanying Statements of Operations and Comprehensive Loss on a straight-line basis over the corresponding periods of revenue recognition of the related payments. As of December 31, 2016, the balances of these unamortized fees included in current and long-term prepaid expenses and other assets was $319,758 and $872,488, respectively. As of December 31, 2017, the balances of these unamortized fees included in current and long term prepaid expenses and other assets was $319,758 and $552,730, respectively.

In June 2016, Liquidia entered into an amendment to the UNC Letter Agreement, whereby the date for completion of a milestone requiring launch of a commercial product was extended from January 1, 2018 to December 31, 2020. In addition, a 2016 letter agreement was accepted by UNC that detailed Liquidia's efforts in satisfying the obligations of two milestones related to developing and commercializing the licensed technology under the UNC Letter Agreement as of December 31, 2015, and accepted such efforts as satisfying the two milestones dated January 1, 2016. The 2016 letter agreement also included extending the maturity date of the promissory note (see Note 11) to December 31, 2017 and payment of an additional $1,500,000 fee in exchange for modifying these progress milestones required under the UNC Letter Agreement. Even though this amount was added to the outstanding balance of the promissory note in 2016, for the year ended December 31, 2015, the Company accrued the $1,500,000 in research and development expense. In December 2017, the Company executed an amendment to the UNC Letter Agreement that extends the maturity date of the promissory note from December 31, 2017 to June 30, 2018.

6. Revenue From License and Collaboration Agreements

The Company's collaboration and licensing agreements provide for multiple deliverables to be delivered by the Company and include a license to the Company's technology in a particular field of study, participation

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

6. Revenue From License and Collaboration Agreements (Continued)

in collaboration committees, performance of certain research and development services and obligations for certain manufacturing services. Up-front consideration related to the licensing of technology is recognized over the estimated period of the Company's substantive performance obligations.

The Company recognizes the payments received for research and development services in the period when the services are performed and collection is reasonably assured. Royalties related to product sales will be recognized when earned since payments relate directly to products that have been fully developed and for which the Company has satisfied all of its obligations.

The following tables summarize the amounts recorded as revenue in the Statements of Operations and Comprehensive Loss for each significant collaboration and licensing agreement for the years ended December 31, 2016 and 2017:

	2016 Revenue Recognized From			
	Non-Refundable Payments			
	Milestones	Up-front Payments	Research and Development Services	Total
GSK Vaccines	$ —	$ 1,538,465	$ 1,347,369	$ 2,885,834
GSK Inhaled	3,000,000	3,000,000	2,941,592	8,941,592
Gates Foundation	—	145,631	—	145,631
Other	—	110,868	1,133,064	1,243,932
Total	$ 3,000,000	$ 4,794,964	$ 5,422,025	$ 13,216,989

	2017 Revenue Recognized From			
	Non-Refundable Payments			
	Milestones	Up-front Payments	Research and Development Services	Total
GSK Vaccines	$ —	$ —	$ —	$ —
GSK Inhaled	—	3,000,000	3,114,311	6,114,311
Gates Foundation	—	145,631	—	145,631
Other	—	197,585	800,596	998,181
Total	$ —	$ 3,343,216	$ 3,914,907	$ 7,258,123

GSK Vaccines

In June 2012, the Company entered into a Development and Collaboration Agreement (the "Collaboration Agreement") with GSK Vaccines, which is based in Belgium. In connection with the Collaboration

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

6. Revenue From License and Collaboration Agreements (Continued)

Agreement, GSK Vaccines received an exclusive worldwide license of Liquidia's rights to certain substrate technology in a specific biotechnological field. In addition, the Collaboration Agreement included material supply provisions for which the Company received reimbursement payments for research and development services provided and manufacturing services for Company materials provided to GSK Vaccines during the Collaboration Agreement. The initial term of the Collaboration Agreement was three years.

In March 2015, GSK Vaccines extended the Collaboration Agreement through April 30, 2016 for up-front consideration to Liquidia of $5,000,000. Also during 2014 and 2015, the Company entered into other agreements under the collaboration, primarily for research services. In April 2016, GSK Vaccines did not extend this collaboration or exercise their option for a license.

GSK Inhaled

In June 2012, the Company entered into a collaboration, as well as a license option and equity agreement, with GSK Inhaled, which is based in the United Kingdom. The agreements included up-front payments for option license rights to certain life science fields, research and development and manufacturing funding amounting to $14,000,000 for up to three years, and key license terms, including extension and license fees, milestone payments and royalties on product sales. The Company recognized the non-refundable up-front fees into revenue over three years, in line with the term of the original agreement. In 2012, in connection with GSK's interest in the Company's technology, GSK invested $3,799,999 in a Series C-1 preferred stock financing.

In September 2015, GSK Inhaled exercised the option to permanently license the technology for a non-refundable payment to the Company of $15,000,000. The Company is recognizing the non-refundable up-front fees into revenue over five years based on the estimated development period. Pursuant to the license provisions of the collaboration agreement, GSK Inhaled is potentially required to pay Liquidia for certain milestones reached in the aggregate maximum amount of $158,000,000, and GSK Inhaled is required to pay Liquidia tiered royalties on the worldwide sales of the licensed products at percentages in the mid-single digits, based on net revenues from nonproprietary and proprietary products. Also during 2014 and 2015, the Company entered into other agreements under this collaboration, primarily for research services.

In December 2017, GSK Inhaled made the Company aware of its modified plans under the GSK Inhaled Collaboration and Option Agreement, and the reduced requirement and budget for Liquidia support, commensurate with its research and development plans related to PRINT for 2018. As a result, in December 2017, the Company committed to a plan to reduce its workforce which was communicated to the workforce in January 2018. The expense resulting from this plan is approximately $400,000, for which $0 was accrued in the Balance Sheets as of December 31, 2017.

Gates Foundation

In February 2011, the Company entered into a collaboration agreement with the Bill & Melinda Gates Foundation, primarily for research services related to developing vaccines targeted at developing markets. The Company is recognizing the up-front fee into revenue over the 6.75 year term of the agreement.

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

6. Revenue From License and Collaboration Agreements (Continued)

Other:

G&W Laboratories

In June 2016, the Company entered into a development and license agreement with G&W Laboratories to develop multiple products for topical delivery in dermatology using the Company's PRINT technology. The first non-refundable up-front fee of $1,000,000 was received in June 2016. This up-front fee was deferred and is being amortized into revenue over a period of five years, expected to correspond with the collaboration term. Research and development services commenced in July 2016 on the first program pursuant to this agreement.

Governmental Grant Awards

Income received from governmental grant awards are recognized as revenue under a cost-plus-fixed fee ("cost-plus") contract which provides for payment of a negotiated fee that is fixed at the inception of the contract. Grants are typically multi-year and the fees may be changed as a result of changes in the scope of work to be performed. Revenue on cost-plus contracts are recognized as costs are incurred at amounts billable to the organization. Revenue from governmental grant awards for the years ended December 31, 2016 and 2017 was $472,363 and $235,858, respectively.

7. Property, Plant and Equipment

Property, plant and equipment consisted of the following at December 31, 2016 and 2017:

	2016	2017
Lab equipment	$ 3,384,149	$ 3,847,546
Grant equipment	1,115,044	1,143,701
Office equipment	111,698	123,655
Furniture and fixtures	205,051	205,051
Computer equipment	637,327	677,569
Leasehold improvements	5,428,860	7,218,687
Construction-in-progress	337,255	2,830,407
Total property, plant and equipment	11,219,384	16,046,616
Accumulated depreciation	(6,871,673)	(7,803,604)
Property, plant and equipment, net	$ 4,347,711	$ 8,243,012

The Company recorded depreciation expense of $651,560 and $931,931, respectively, for the years ended December 31, 2016 and 2017. Maintenance and repairs are expensed as incurred and were $203,466 and $244,885, respectively, for the years ended December 31, 2016 and 2017.

During 2015, the Company commenced construction on improvement within its current facilities of approximately $2,400,000, which included both facility construction and implementation of specialized lab equipment. The following table details the activity of Construction-in-Progress ("CIP") in 2016 and 2017

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

7. Property, Plant and Equipment (Continued)

and the associated transfer to Leasehold Improvements and Lab Equipment when the assets were placed in service:

	Leasehold Improvements	Lab Equipment	Total
Balance as of December 31, 2015	$ 237,407	$ —	$ 237,407
Add: Purchases related to CIP	2,484,711	99,047	2,583,758
Less: Transfer due to placed in service	(2,384,863)	(99,047)	(2,483,910)
Balance as of December 31, 2016	337,255	—	337,255
Add: Purchases related to CIP	3,108,809	812,205	3,921,014
Less: Transfer due to placed in service	(1,427,862)	—	(1,427,862)
Balance as of December 31, 2017	$ 2,018,202	$ 812,205	$ 2,830,407

The Construction in Progress balance includes $76,844 and $57,625 of capitalized interest costs for the years ended December 31, 2016 and 2017, respectively.

In December 2016, the Company executed an agreement with a commercial manufacturer to build a PRINT Particle Fabrication Line for the production of cGMP particles for Pharmaceutical Products. The cost is expected to be approximately $1,500,000. The Company financed this transaction with a 3rd party vendor ("Lessor") capital lease. The Lessor is making scheduled payments to the manufacturer per the payment schedule in the agreement as the asset is built. The Lessor charges the Company a monthly lease rate on the scheduled payments made to the manufacturer until the asset is completed and placed in service. The lease commenced upon completion of construction on March 1, 2018.

In accordance with ASC 840, *Leases*, for build-to-suit arrangements where the Company is involved in the construction of an asset prior to the commencement of the lease or takes some level of construction risk, the Company is considered the accounting owner of the assets during the construction period. Accordingly, during construction activities, the Company recorded a Construction in progress asset within Property, plant and equipment and a corresponding deferred financing obligation liability for contributions by the lessor toward construction. Upon completion of the construction, since the lease met "sale-leaseback" criteria, the Company removed the asset and related financial obligation from the Balance Sheets and treated the equipment lease as a capital lease. As of December 31, 2017, $1,341,810 for a build-to-suit asset is included in Property, plant and equipment, net, and the corresponding financial obligation of $1,341,810 in deferred financing obligation in the accompanying Balance Sheets.

8. Income Taxes

No provision for federal and state income tax expense has been recorded for the years ended December 31, 2016 and 2017 due to the valuation allowance recorded against the net deferred tax asset and recurring losses.

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

8. Income Taxes (Continued)

On December 22, 2017, the Tax Cuts and Jobs Act (the "TCJA") was enacted into law. This new law includes significant changes to the U.S. corporate income tax system, including a permanent reduction in the corporate income tax rate from 35% to 21%, limitations on the deductibility of interest expense and executive compensation and the transition of U.S. international taxation from a worldwide tax system to a territorial tax system. The TCJA also limits interest expense deductions to 30% of taxable income before interest, depreciation and amortization from 2018 to 2021 and then taxable income before interest thereafter. The TCJA permits disallowed interest expense to be carried forward for five years. The Company has calculated its best estimate of the impact of the TCJA in its year-end income tax provision in accordance with its understanding of the TCJA and guidance available at the time. The overall impact of the TCJA resulted in a decrease to the deferred tax assets and a corresponding decrease to the valuation allowance of $14.1 million. Using the guidance issued by the SEC staff in Staff Accounting Bulletin No. 118, the Company expects to complete the accounting for the TCJA when the 2017 U.S. federal income tax return is filed in 2018.

Deferred income taxes reflect the net tax effect of temporary differences between the carrying amount of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. Significant components of the Company's deferred tax assets and liabilities are as follows at December 31, 2016 and 2017:

	2016	2017
Non-current deferred income tax assets:		
Tax loss carryforwards	$ 24,330,103	$ 22,274,378
Deferred revenue	4,022,192	2,098,191
Research and development credits	2,382,047	2,382,047
Stock-based compensation	414,409	277,948
Bad debt	17,309	11,053
Compensation	87,658	9,766
Fixed assets	76,545	63,570
Patent amortization	180,734	106,622
Other	349,132	768,936
Valuation allowance	(31,860,129)	(27,992,511)
Total non-current deferred income tax assets	$ —	$ —

At December 31, 2016 and 2017, the Company established a full valuation allowance against its net deferred tax assets since, at the time, the Company could not assert that it was more likely than not that its deferred tax assets would be realized. As a result, there was an increase in the valuation allowance in 2016 of $5,267,135 and a decrease in 2017 of $3,934,784.

At December 31, 2017, the Company had federal and state income tax loss carryforwards of $96,856,855 and $97,946,266, respectively, which begin to expire in 2027 for federal purposes and in 2022 for state

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

8. Income Taxes (Continued)

purposes. The utilization of the loss carryforwards to reduce future income taxes will depend on the Company's ability to generate sufficient taxable income prior to the expiration of the loss carryforwards.

The Internal Revenue Code of 1986, as amended, contains provisions which limit the ability to utilize the net operating loss carryforwards in the case of certain events, including significant changes in ownership interests. If the Company's net operating loss carryforwards are limited, and the Company has taxable income which exceeds the permissible yearly net operating loss carryforwards, the Company would incur a federal income tax liability even though net operating loss carryforwards would be available in future years.

The reasons for the difference between actual income tax expense for the years ended December 31, 2016 and 2017 and the amount computed by applying the statutory federal income tax rate to income before income tax are as follows:

	2016		2017	
	Amount	% of Pretax Earnings	Amount	% of Pretax Earnings
Income tax benefit at statutory rate	$ (5,417,479)	34.0%	$ (9,912,442)	34.0%
State income taxes, net of federal tax benefit	(314,219)	2.0	(581,901)	2.0%
Non-deductible expenses	2,616	(0.1)	12,757	(0.1)%
Stock-based compensation	83,957	(0.5)	153,033	(0.5)%
Non-deductible interest expense	—	—	3,795,060	(13.0)%
Derivative and warrant fair value adjustments	—	—	(4,040,646)	13.9%
Change in federal rate	—	—	14,113,550	(48.4)%
Change in state rate	442,782	(2.8)	371,138	(1.3)%
Other	(64,792)	0.4	24,235	(0.1)%
Change in valuation allowance	5,267,135	(33.0)	(3,934,784)	13.5%
Provision for income taxes	$ —	0.0%	$ —	0.0%

The Company recognizes the tax benefit from an uncertain tax position only if it is more likely than not that the tax position will be sustained on examination by the taxing authorities based on the technical merits of the position. As of December 31, 2017, the Company had no unrecognized tax benefits. The Company's policy for recording interest and penalties related to uncertain tax provisions is to record them as a component of the provision for income taxes. The Company did not have any accrued interest or penalties associated with any unrecognized tax positions as of December 31, 2016 and 2017, and there were no such interest or penalties recognized during the years ended December 31, 2016 and 2017.

The Company has all tax years open to examination by federal tax and state tax jurisdictions. No income tax returns are currently under examination by taxing authorities.

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

9. Related-Party Transactions

Envisia

Through June 2016, Liquidia was party to shared service agreements with Envisia and LQ3, whereby they shared facilities, patent costs, management services and manufacturing in exchange for monetary consideration.

For shared services provided by Liquidia to Envisia, Liquidia recorded the following as a reduction of Research and Development Expenses in the accompanying Statements of Operations and Comprehensive Loss for the years ended December 31, 2016 and 2017:

- Facilities shared services of $462,000 and $0, respectively; and
- Sharing of patent costs of $152,893 and $105,623, respectively.

In 2015, Liquidia entered into custom manufacturing agreements with Envisia to provide cGMP material. Revenue is recognized as costs are incurred at amounts billable to the organization. Revenue recognized by Liquidia under these agreements totaled $172,358 and $0 for the years ended December 31, 2016 and 2017, respectively.

In May 2016, net shared service costs that remained unpaid by Envisia at the time were converted into a promissory note with principal amount of $985,594, bearing interest at the rate of 5.00% per annum that was recorded as a Note Receivable. Principal and interest payments were scheduled to be paid in eight equal monthly installments, maturing on December 31, 2016.

Full payment of the promissory note was received in August 2016, and accordingly the Company issued a full release and discharge of the note.

Liquidia had a total net receivable from Envisia of $49,783 and $0 as of December 31, 2016 and 2017, respectively.

In May 2015, the license related to the field of dermatology and articular was purchased back by the Company from Envisia in exchange for 50,000 shares of its Envisia common stock. The purchase price (license consideration) of 50,000 shares of Envisia common stock was based upon third-party appraisals of the value of the Envisia common stock at the transaction date.

In March 2017, the license related to the Otic field, along with other intellectual property rights, as defined, was purchased back by the Company from Envisia in exchange for 75,000 shares of its Envisia common stock.

LQ3

Liquidia charged LQ3 through February 28, 2016 for facilities shared services of $10,400, which were recorded as a reduction of Research and Development Expenses in the accompanying Statements of Operations and Comprehensive Loss.

Liquidia did not have any receivable or payable balances with LQ3 as of December 31, 2016 and 2017.

Note Receivable from Related Party

In September 2016, the Company's Chief Executive Officer entered into a loan agreement with the Company to finance the exercise of stock options to purchase 500,000 shares for $94,271, with a maturity date upon the earlier of (i) immediately prior to the Company's public filing of a prospectus or other offering document relating to an IPO of securities or (ii) September 19, 2017. Interest accrues at 1.00% per annum. This loan receivable was recorded in the Company's 2016 Balance Sheet at that date as a $55,000

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

9. Related-Party Transactions (Continued)

offset to stockholders' equity and $39,534 within related party receivables. The note receivable was repaid in full in 2017.

10. Commitments and Contingencies

Operating Leases

The Company conducts its operations from leased facilities in Morrisville, North Carolina, the leases for which expire in 2022. In June 2007, the Company entered into an 84-month operating lease agreement, commencing in November 2007, for general office, laboratory, research and development and light manufacturing space. The lease agreements require the Company to pay property taxes, insurance, common area expenses and maintenance costs.

In November 2014 and November 2015, the Company executed the first and second extension period clauses, respectively, resulting in additional months to the lease for the related premises extending until October 2022. As part of these extensions, the Company received tenant allowances of $228,973 and $392,020, respectively, for expansion of laboratory and office space.

In January 2017, the Company signed a second extension to the lease of its primary building for an additional 48 months and expiring October 31, 2026. A tenant allowance of approximately $2,000,000 was also made available for use to help fund the expansion and build out of the primary building. This allowance was fully utilized as of December 31, 2017.

These allowance amounts were recorded as a long-term deferred rent liability and amortized as a reduction in rent expense over the remaining term of the lease. The balance of all unamortized deferred rent and allowances totaled $665,817 and $2,881,180 as of December 31, 2016 and 2017, respectively.

The Company also leases copier equipment under an operating lease, which expires in 2019.

As of December 31, 2017, future minimum lease payments under operating leases having initial or remaining non-cancelable lease terms in excess of one year were as follows:

2018	$	968,464
2019		994,408
2020		1,023,949
2021		1,054,558
2022		1,073,086
Therafter		4,159,141
Total	$	9,273,606

Rent expense, including other facility expenses, for the years ended December 31, 2016 and 2017 was $705,107 and $1,046,721, respectively.

In March 2012, the Company entered into an agreement, as amended, with Chasm Technologies, Inc. for manufacturing consulting services related to the Company's manufacturing capabilities during the term of the agreement. As future contingent consideration under the agreement, the Company agreed to pay $400,000 related to the timing of the Company's first Phase 3 clinical trial which commenced in December

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

10. Commitments and Contingencies (Continued)

2017. The consideration of $400,000 is comprised of initial consideration of $20,000 paid in 2017, $80,000 to be paid upon first dosing of the first patient in the Phase 3 clinical trial, and $300,000 due no later than December 31, 2018. In addition, the Company also agreed to pay future contingent royalties on net sales totaling no more than $1,500,000. As of December 31, 2016 and 2017, $0 and $380,000, respectively, was accrued and is included in Accrued Expenses in the accompanying Balance Sheets.

Capital Leases

The Company leases specialized lab equipment under leases classified as capital leases. The related capitalized assets are amortized on a straight-line basis over the estimated useful life of the asset. The interest rates related to these lease obligations range from 0.2% to 12.2%. The following table shows the future minimum lease payments under the capital leases by year and the present value of the minimum lease payments:

Year ending December 31:	
2018	$ 489,022
2019	313,856
2020	215,841
Thereafter	—
Total minimum lease payments	1,018,719
Less: Amount representing interest	(38,296)
Present value of minimum lease payments	$ 980,423

The net book value of assets under capital leases was $915,300 as of December 31, 2017. At December 31, 2017, the present value of minimum lease payments due within one year was $489,022.

Other

In June 2017, the Company was served with a lawsuit filed by Allergan, Inc., in the United States District Court for the Central District of California, naming Liquidia and Envisia as defendants. The lawsuit alleged that Envisia's development efforts of one of its product candidates misused Allergan confidential information. The Company's involvement results from its possibly related activities that occurred prior to November 8, 2013, the date of formation of Envisia. In October 2017, the Company settled the litigation with Allergan, Inc., with no financial payments due from the Company or other consideration that materially affects the operation of the Company. There was no accrual for this in the Balance Sheets as of December 31, 2016 and 2017.

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

11. Long-Term Debt

Long-term debt consisted of the following as of:

	Maturity Date	December 31, 2016	December 31, 2017
Pacific Western Bank Tranche I note	December 8, 2019	$ 2,974,240	2,488,572
Pacific Western Bank Tranche II note	October 10, 2020	2,974,240	2,820,382
Pacific Western Bank Tranche III note	October 10, 2020	—	3,760,509
UNC promissory note	June 30, 2018	2,165,180	2,257,684
Convertible notes, net of discounts	December 31, 2018	—	9,837,984
Less current portion		(2,898,101)	(15,608,349)
Long-term debt, less current portion		$ 5,215,559	$ 5,556,782

UNC Promissory Note

In September 2012, the Company issued an unsecured promissory note with principal amount of $600,000 as a sublicense fee to UNC, with principal and interest due in full on September 1, 2016, bearing an interest rate equal to the one-year LIBOR plus 2%, compounding annually. In June 2016, the Company (as licensee) negotiated modifications to its license agreement with UNC in exchange for an increase of $1,500,000 to the note payable and extension of the maturity to December 31, 2017. As the Company had previously recorded a contingent liability of $1,500,000 related to this license, the increase to the note payable was recorded as a reduction to the accrued expense balance at this time. In addition, the initial note of $600,000 plus accrued interest were extended under the same terms. The combined note payable interest rate was increased by 1%. The balance of the promissory note at December 31, 2016 and 2017 was $2,165,180 and $2,257,684, respectively. In December 2017, the Company executed an amendment to the UNC Letter Agreement that extends the maturity date of the promissory note from December 31, 2017 to June 30, 2018. All other terms and conditions of the Letter Agreement continue in force through the new maturity date.

Pacific Western Bank

In January 2016, the Company entered into a Loan and Security Agreement ("LSA") with Pacific Western Bank ("Pacific Western"). The LSA provides that the Company may borrow up to $3,000,000 in a term loan ("Term Loan") to supplement working capital and finance facility expansion and capital equipment purchases. The Term Loan is collateralized by a lien on all assets of the Company that are not otherwise encumbered, including a negative pledge on intellectual property prohibiting its sale without the bank's consent. The Company is also obligated to comply with various other customary covenants, including, among other things, restrictions on its ability to dispose of assets, replace or suffer the departure of the CEO or CFO without delivering 10 days' prior written notification to the bank, suffer a change on the Board of Directors which would result in the failure of at least one partner of either New Enterprise Associates or Canaan Partners or their respective affiliates to serve as a voting member, make acquisitions, be acquired, incur indebtedness, grant liens, make distributions to its stockholders, make investments, enter into certain transactions with affiliates or pay down subordinated debt, subject to specified exceptions. Amounts

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

11. Long-Term Debt (Continued)

borrowed under the Term Loan may be repaid at any time without penalty or premium. The Term Loan was interest-only through July 6, 2017, followed by an amortization period of 30 months of equal monthly payments of principal plus interest, beginning on August 6, 2017 and continuing on the same day of each month thereafter until paid in full. Any amounts borrowed under the Term Loan bore interest at 3.75% during the initial 18-month interest-only period. Following the interest-only period, the interest rate increased to 5.00%, which is fixed for the duration of the loan. At closing, the Company was granted availability of the full $3,000,000, later designated as Tranche I of the Term Loan, with proceed disbursements in the minimum principal amount of $250,000 per draw. The Tranche I loan fully matures and expires when the final payment is made on January 6, 2020.

In October 2016, the Company amended the Term Loan ("Second Amendment") to (1) increase the initial loan amount to $10,000,000 by providing a second Term Loan of $3,000,000 ("Tranche II") and a third Term Loan of $4,000,000 ("Tranche III"); and (2) amend a section of the LSA regarding incurred indebtedness. The additional term loans are both subject to the same terms and conditions as the original Term Loan under the LSA. With the Second Amendment, new covenants were enacted requiring the Company to (1) receive proceeds from a sale or issuance of equity by December 31, 2016, which was achieved; (2) file a new clinical trial authorization by December 31, 2016, which was achieved; and (3) agree to set future covenants in future amendments after achievement of the aforementioned milestones. Pursuant to the Second Amendment, Tranche II and Tranche III both bear a fixed rate of interest of 3.75% until October 12, 2017, and 5.0% per annum beginning October 13, 2017 and thereafter, followed by an amortization period of 36 months of equal monthly payments of principal plus interest, beginning on November 12, 2017. Tranche II and Tranche III loans fully mature and expire when the final payment is made on October 12, 2020. As of December 31, 2016 Tranche I, Tranche II, and Tranche III have outstanding balances of $2,974,240, $2,974,240, and $0, respectively. As of December 31, 2017 Tranche I, Tranche II, and Tranche III have outstanding balances of $2,488,572, $2,820,382, and $3,760,509, respectively.

In early 2017, the Company breached a covenant in the LSA with Pacific Western Bank by failing to set mutually agreeable financial or milestone covenants on or before January 30, 2017. On March 30, 2017, pursuant to a Fourth Amendment to the LSA entered into between the Company and Pacific Western, Pacific Western waived the breach of this covenant and the covenant remains in effect.

In October 2017, the Company breached a covenant in its LSA with Pacific Western by failing to maintain minimum levels of cash. On November 30, 2017, pursuant to the Eighth Amendment to the Loan and Security Agreement, Pacific Western waived the breach of this covenant and amended the LSA to require the Company to maintain a cash balance of at least $2,500,000, monitored daily, from November 30, 2017 until the Company receives at least $12,000,000 from the issuance of equity instruments by December 31, 2017. The Company was in breach of this covenant as of December 31, 2017. In February 2018, Pacific Western waived the breach of this covenant as a result of the Company receiving equity financing in excess of the requirement.

Convertible Notes

In January and February 2017, the Company issued an aggregate of $11.8 million in principal of convertible promissory notes. The January and February Notes are accompanied by warrants to purchase of up to 25% of the aggregate principal amounts of the notes, equal to 3,698,128 shares of Series C-1. The January and February Notes mature on December 31, 2018, as amended, and bear interest at eight percent

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

11. Long-Term Debt (Continued)

(8%) per annum. Interest is earned daily and computed on the actual number of days elapsed until all the amounts under the notes have been paid in full. All unpaid principal and all accrued, but unpaid interest of each investor's note is due and payable on demand at the request of the investor at any time after December 31, 2018. In addition, upon the consummation of an asset sale, acquisition, or IPO, as defined, the investors may elect to accelerate the repayment of the note or convert into Class A or Series C-1 based on the following scenarios:

Singapore IPO

Upon the consummation of an IPO of the Company's capital stock registered on the Singapore Exchange Securities Trading Limited (a "Singapore IPO") after August 1, 2017, the holders have the right to elect to (i) receive payment from the Company equal to the outstanding principal plus all accrued but unpaid interest or (ii) convert the outstanding principal and accrued but unpaid interest into such shares of the Company's capital stock at a price per share that is equal to 70% of the price per share paid by the purchasers of such shares in such IPO.

Domestic IPO

Upon the consummation of an IPO of the Company's Common Stock registered under the Securities Act of 1933, after which such Common Stock is listed for trading on a United States national securities exchange (a "Domestic IPO"), the holders have the right to elect to (i) receive payment from the Company equal to the outstanding principal plus accrued but unpaid interest or (ii) convert all outstanding principal and accrued but unpaid interest into shares of the Company's Common Stock at a price per share that is equal to 75% of the price per share paid by the purchasers of the shares in such IPO.

Automatic Conversion upon Qualified Financing

The principal and accrued but unpaid interest automatically convert into shares of Preferred Stock issued in a Qualified Financing, as defined. The number of shares of Preferred Stock issued will be equal to the quotient of (i) the principal amount plus accrued but unpaid interest and (ii) 75% of the lowest price per share paid by investors participating in the Qualified Financing. If a Qualified Financing had not occurred prior to December 31, 2017, the holders of the notes had the right to elect to convert the outstanding principal plus accrued but unpaid interest into shares of the Company's Series C-1 at $0.59808 per share. The holders did not exercise this right.

Conversion upon Non-Qualified Financing

The holders may to elect to convert the outstanding principal and accrued but unpaid interest on the notes into any shares of the Company's capital stock that are issued in any financing transaction other than a Qualified Financing, a Domestic IPO or a Singapore IPO (a "Non-Qualified Financing"). The number of shares issued will be equal to the quotient of (i) the sum of the principal amount plus accrued but unpaid interest and (ii) 75% of the lowest price per share paid by investors participating in the Non-Qualified Financing.

Strategic Transaction

Upon the consummation of an asset sale of all or substantially all of the Company's assets or an acquisition, merger or change in control (a "Strategic Transaction"), the holders of the notes have the right to elect to (i) receive a payment from the Company equal to the sum of (1) 200% of the then outstanding principal and (2) accrued but unpaid interest or (ii) convert the outstanding principal and accrued but unpaid interest into shares of the Company's Series C-1 at $0.59808 per share.

Additionally, upon the occurrence of certain Events of Default, as defined in the notes, each investor may elect to accelerate the repayment of all unpaid principal and accrued interest under each note and the

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

11. Long-Term Debt (Continued)

notes provide for automatic redemption upon the occurrence of certain bankruptcy related Events of Default, as defined in the notes.

In July 2017, the Company entered into a series of unsecured convertible note agreements of $10.4 million in the aggregate. The July Notes bear interest at a rate of 8% per annum with a maturity date of December 31, 2018. In conjunction with this financing, the Company also entered into a commitment with an advisor in the form of a convertible note amounting to $442,356 with terms similar to the related transaction. The July Notes were not accompanied by warrants. Principal plus accrued interest convert into either preferred or common stock at the time of a Qualified Financing at a discount to the share price, depending on the financing similar to the January and February Notes. Conversion discounts on these convertible notes were largely similar to the January and February Notes except that the discount for a Singapore and Domestic IPO were both 50%.

In November 2017, the Company issued a series of unsecured subordinated convertible notes with an aggregate principal amount of $5.2 million to new and existing investors. The November Notes bear interest at a rate of 8% per annum with a maturity date of December 31, 2018. Principal plus accrued interest convert into either preferred or common stock at the time of a qualified financing, as defined, at a discount to the share price, depending on the financing. In conjunction with this financing, the Company also incurred fees of $392,000. The November Notes were not accompanied by warrants. Conversion discounts on these convertible notes were largely similar to the July Notes except that there was no discount upon mandatory conversion into a private financing round. In addition, at maturity, the November Notes (principal plus accrued but unpaid interest) convert into shares of the Company's Series C-1 at $0.72877 per share.

Accounting for Convertible Notes

The Company accounts for debt as liabilities measured at amortized cost and amortizes the resulting debt discount from allocation of proceeds to interest expense using the straight-line method over the expected term of the notes pursuant to ASC 835, *Interest* (ASC 835).

In connection with the issuance of the convertible notes and warrants, the Company recorded discounts equal to the full amount of each series of notes based on an allocation of proceeds to the warrants, an allocation to bifurcated derivatives which consist of a contingent put option upon a change of control or acceleration upon event of default and a contingent call option upon a change of control included in the notes, and a beneficial conversion feature, before issuance costs, based on the difference between the fair value of the underlying common stock at the commitment date of each note transaction and the effective conversion price of the notes, as limited by the proceeds allocated to the notes. Since the initial carrying value of all three series of convertible notes was $0, the combined debt issuance costs of $1,397,628 were charged to Interest Expense in the accompanying Statements of Operations and Comprehensive Loss. See Note 2 for discussion of the Company's policies for accounting for convertible instruments with detachable liability-classified warrants.

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

11. Long-Term Debt (Continued)

The following is a summary of the liability component of Convertible Notes as of December 31, 2017:

	January and February Notes	July Notes	November Notes	Total
Principal amount of Convertible Notes	$ 11,796,168	$ 10,442,356	$ 5,150,000	$ 27,388,524
Unamortized discount on the notes	(5,504,878)	(7,291,816)	(4,753,846)	(17,550,540)
	$ 6,291,290	$ 3,150,540	$ 396,154	$ 9,837,984

The debt discount is being amortized as interest expense through the date of maturity, December 31, 2018. As of December 31, 2017, stated coupon interest accrued for convertible notes was $1,323,958 and amortization of debt discount and debt issuance costs were $9,837,984 and both are included in interest expense in the Statements of Operations and Comprehensive Loss.

Accounting for the Warrant Liabilities

The Company's liability-classified warrants were recorded as liabilities at their estimated fair value at the date of issuance, with the subsequent changes in estimated fair value recorded in derivative and warrant fair value adjustments in the Company's Statements of Operations and Comprehensive Loss. The warrants, with a fair value of $4,474,122 at inception, were initially recorded as warrant liabilities on the Balance Sheets with a corresponding discount to the notes. The change in the estimated fair value of the warrant liabilities for the year ended December 31, 2017 resulted in a fair value adjustment of $2,011,263 and is included in derivative and warrant fair value adjustments in the Statements of Operations and Comprehensive Loss. Changes in the values of the warrant liabilities are summarized below:

	Warrant Liabilities
Fair value at issuance in February 2017	$ 4,474,122
Change in fair value	(2,011,263)
Fair value at December 31, 2017	$ 2,462,859

Assumptions Used in Determining Fair Value of Liability Classified Warrants

To estimate the fair value of the warrants, the Company used a combination of the Current Value Method, Option Pricing Method ("OPM"), and Black-Scholes Option Pricing Model, in a Probability-Weighted Expected Return Method ("PWERM") context, or the Hybrid Method ("Hybrid Method"). The Company estimated the fair value of Series C-1 and estimated the fair value of Class A in the Singapore IPO and Domestic IPO scenarios. The Company used a Black-Scholes option pricing model to estimate the fair value of the warrants using the life of the warrants, assuming a Strategic Transaction does not occur, and the fair value of underlying equity values from the first step. The Company probability-weighted each scenario to arrive at an estimated fair value of the warrants.

Depending upon the scenario, warrants could be exercised to purchase either Class A or Series C-1 stock. To value the warrants in each scenario, the Company used either an OPM or the Black-Scholes option

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

11. Long-Term Debt (Continued)

pricing model. The hybrid method is a useful alternative to explicitly modeling all PWERM scenarios in situations when the Company has transparency into one or more near-term exits but is unsure about what will occur if the current plans fall through.

Key assumptions in the hybrid method include:

- OPM-Stay Private, US IPO or Singapore IPO
- Probability
- Timing (Each IPO)
- Enterprise value
- Type of Security
- Estimated security value
- Methodology of valuing warrant OPM

Accounting for the Derivative Liabilities

Management determined that the various conversion features discussed above represent, in substance, a put option (redemption feature) designed to provide the investor with a fixed monetary amount, settled in shares. Management determined that this put option and the Contingent Interest should be separated from the notes and accounted for as a compound derivative liability primarily because the notes were issued at a substantial discount because the warrants, put option, and the Contingent Interest meet the net settlement criterion. The compound derivative liabilities were initially recorded as a derivative liabilities on the Balance Sheets and a corresponding discount to the notes. The change in the estimated fair value of the derivative liabilities for the year ended ended December 31, 2017 resulted in a fair value adjustment of $9,872,990 and is included in derivative and warrrant fair value adjustments in the Statements of Operations and Comprehensive Loss.

Changes in the values of the derivative liabilities are summarized below:

	Derivative Liabilities related to the			
	January and February Notes	July Notes	November Notes	Total
Fair value at issuance	$ 4,365,880	$ 5,507,110	$ —	$ 9,872,990
Change in fair value	(4,365,880)	(5,507,110)	—	(9,872,990)
Fair value at December 31, 2017	$ —	$ —	$ —	$ —

Assumptions Used in Determining Fair Value of Compound Bifurcated Derivative

The Company assessed the accounting for the Convertible Notes and determined that there were several embedded derivatives that required bifurcation from the host debt instrument at fair value in accordance with ASC 815, *Derivatives and Hedging.* These embedded derivatives are more like equity instruments, and thus not "clearly and closely related" to the economic characteristics of the Convertible Notes. Further, they were determined not to meet the definition of being indexed to the Company's own stock due to the variable number of shares to be converted under different scenarios. When a host instrument has multiple embedded derivative features that require bifurcation, ASC 815 requires that they be bundled as one and accounted for separately from the Convertible Notes at fair value.

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

11. Long-Term Debt (Continued)

To determine the fair value of such derivatives, the Company compared i) the expected payout from the different conversion scenarios upon their expected date of occurrence, discounted to present value at a risk-free rate, to 2) the fair value of the Convertible Notes if it were paid in cash or converted into Series C-1 on December 31, 2017. The difference between these two results represents the fair value of the bundled derivative.

First, the Company estimated the expected payout under the Singapore IPO, Domestic IPO and Qualified Financing scenarios. The principal and accrued interest on the Convertible Notes were calculated through the expected payout date, and divided by the stated conversion price discount to determine the amount that would be paid upon occurrence of the event. The payoff from each scenario was then discounted to present value at the risk-free rate and the Company probability-weighted each scenario to arrive at the expected payout value for purposes of the valuation. Next, it was assumed that if conversion under the IPO or Financing scenarios did not occur by December 31, 2017, it would be most advantageous for the investors to convert the Convertible Notes into Series C-1 or request payment of principal and interest in cash. The value of the Convertible Note under these scenarios was modeled using the OPM. The difference between the payout value under the various conversion scenarios and the value of the Convertible Notes under the OPM, assuming the Convertible Notes are not converted or paid until December 31, 2017, results in the fair value of the bundled derivative.

Accounting for the Beneficial Conversion Feature

The Company did not separate from the notes the conversion feature in which the holders may convert the principal and interest on the notes into shares of the Company's Series C-1 Preferred Stock at $0.59808 per share if a Qualified Financing has not occurred prior to December 31, 2017. The Company concluded that this conversion feature is a beneficial conversion feature that should be recognized separately and measured initially at its intrinsic value. Since the intrinsic value of this beneficial conversion feature is greater than the proceeds allocated to the notes, the amount of the discount assigned to the beneficial conversion feature is limited to the amount of the proceeds allocated to the notes. The Company recorded the beneficial conversion feature of $2,956,166, $4,935,246, and $5,150,000 as additional paid-in capital and a corresponding discount to the notes on the Balance Sheets for the January and February Notes, July Notes and November Notes, respectively.

Scheduled maturities of long-term debt as of December 31, 2017 are as follows:

Year ending December 31:	
2018	$ 33,179,542
2019	3,533,333
2020	2,044,444
Total	38,757,319
Less: Unamortized discount	(17,550,541)
Less: Unamortized debt issuance costs	(41,647)
Less: Current portion of long-term debt	(15,608,349)
	$ 5,556,782

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

December 31, 2016 and 2017

12. Subsequent Events

Subsequent events have been evaluated for disclosure through March 14, 2018, the date the Company's financial statements were available to be issued.

In February 2018, the Company received proceeds of $25.6 million in exchange for the corresponding sale of Series D Preferred Stock at a price per share of $0.59808 and related rights offering. In addition, all outstanding convertible notes, plus accrued interest, totaling $28.9 million, were converted into Series D preferred stock at the same price per share (see Note 3).

As mentioned in Note 11, as of December 31, 2017, the Company was in breach of a certain covenants under its LSA with Pacific Western. In February 2018, Pacific Western waived the breach of this covenant as a result of the Company receiving equity financing in excess of the requirement (see Note 11).

On March 7, 2018, the Board approved the grants of 13,645,767 stock options with an exercise price of $0.55 per share and 2,146,767 restricted stock units.

In March 2018, the Company completed construction and placed in service of its new PRINT Particle Fabrication Line, which was being financed with Lessor. Upon completion, the lease commenced in the same month (see Note 7).

13. Subsequent Event (Unaudited)

Additional subsequent events have been evaluated for disclosure through April 9, 2018, the date the Company's financial statements were reissued.

On March 29, 2018, the Company and Pacific Western executed the Ninth Amendment to the LSA (the "Ninth Amendment"). With the Ninth Amendment, new covenants were enacted requiring the Company to (1) at all times maintain a balance of cash at Pacific Western of at least $8.0 million, an increase of $5.5 million from its prior cash balance covenant, and (2) not observe any materially adverse data from its LIQ861 Phase 3 study on or before December 31, 2018. Pursuant to this Ninth Amendment, the interest-only period for the Tranche I loan was amended to include the period from January 7, 2018 to July 6, 2018, and the interest-only period for the Tranche II and Tranche III loans was amended to include the period from January 13, 2018 to July 12, 2018. Prior to executing the amendment, the Company had made principal payments of $0.6 million inside of the defined interest-only period, which were subsequently refunded on the same day.

Liquidia Technologies, Inc.
Balance Sheets

	December 31, 2017	March 31, 2018 (unaudited)
Assets		
Current assets:		
Cash	$ 3,418,979	$ 17,593,796
Accounts receivable, less allowance of $48,108 and $0, respectively	1,622,179	617,400
Prepaid expenses and other current assets	443,460	329,064
Total current assets	5,484,618	18,540,260
Property, plant and equipment, net	8,243,012	8,414,509
Prepaid expenses and other assets	1,115,972	2,273,491
Total assets	$ 14,843,602	$ 29,228,260
Liabilities and stockholders' deficit		
Current liabilities:		
Accounts payable	$ 4,424,948	$ 4,713,267
Accrued expenses	2,785,618	2,144,208
Accrued compensation	1,952,505	745,123
Accrued interest	1,408,869	110,162
Deferred rent	268,628	268,599
Current portion of capital lease obligations	469,798	447,013
Current portion of deferred revenue	3,605,199	431,374
Current portion of long-term debt	15,608,349	5,453,555
Total current liabilities	30,523,914	14,313,301
Long-term capital lease obligations	510,625	478,575
Long-term deferred rent	2,612,552	2,561,117
Long-term deferred revenue	5,527,296	8,980,330
Long-term debt	5,556,782	6,904,813
Deferred financing obligation	1,341,810	—
Warrant liabilities	2,462,859	3,216,746
Total liabilities	48,535,838	36,454,882
Commitments and contingencies (Note 9)		
Stockholders' deficit:		
Preferred stock — Series A, $0.001 par value, 1,974,430 shares authorized, issued and outstanding as of December 31, 2017 and March 31, 2018 (unaudited), liquidation preference of $2,625,992	1,974	1,974
Preferred stock — Series A-1, $0.001 par value, 1,834,862 shares authorized, issued and outstanding as of December 31, 2017 and March 31, 2018 (unaudited), liquidation preference of $6,000,000	1,835	1,835
Preferred stock — Series B, $0.001 par value, 4,620,123 shares authorized, 4,496,908 shares issued and outstanding as of December 31, 2017 and March 31, 2018 (unaudited), liquidation preference of $16,000,000	4,497	4,497
Preferred stock — Series C, $0.001 par value, 17,102,578 shares authorized, issued and outstanding as of December 31, 2017 and March 31, 2018 (unaudited), liquidation preference of $25,000,035	17,103	17,103
Preferred stock — Series C-1, $0.001 par value, 21,254,306 shares authorized as of December 31, 2017 and March 31, 2018 (unaudited), 17,556,178 shares issued and outstanding as of December 31, 2017 and March 31, 2018 (unaudited), liquidation preference of $14,000,000	17,556	17,556
Preferred stock — Series D, $0.001 par value, 0 shares authorized, issued and outstanding as of December 31, 2017, 137,423,317 shares authorized, 91,147,482 issued and outstanding as of March 31, 2018 (unaudited), liquidation preference of $54,513,495	—	91,147
Common stock — Class A (voting), $0.001 par value, 175,000,000 and 265,000,000 shares authorized as of December 31, 2017 and March 31, 2018 (unaudited), respectively, 9,254,228 and 10,122,219 issued and outstanding as of December 31, 2017 and March 31, 2018 (unaudted), respectively	9,254	10,122
Common stock — Class B (non-voting), $0.001 par value, 330,664 shares authorized, issued and outstanding as of December 31, 2017 and March 31, 2018 (unaudited)	331	331
Additional paid-in capital	79,668,525	134,055,036
Accumulated deficit	(113,413,311)	(141,426,223)
Total stockholders' deficit	(33,692,236)	(7,226,622)
Total liabilities and stockholders' deficit	$ 14,843,602	$ 29,228,260

The accompanying notes are an integral part of these financial statements.

Liquidia Technologies, Inc.

Statements of Operations and Comprehensive Loss

(unaudited)

	Three Months Ended March 31,	
	2017	2018
Revenues	$ 1,639,176	$ 925,970
Costs and expenses:		
Cost of sales	79,940	27,049
Research and development	6,175,557	7,626,701
General and administrative	2,151,078	2,149,725
Total costs and expenses	8,406,575	9,803,475
Loss from operations	(6,767,399)	(8,877,505)
Other income (expense):		
Interest income	151	—
Interest expense	(2,246,447)	(17,876,795)
Derivative and warrant fair value adjustments	(823,051)	(753,887)
Total other income (expense), net	(3,069,347)	(18,630,682)
Net loss	(9,836,746)	(27,508,187)
Other comprehensive loss	—	—
Comprehensive loss	$ (9,836,746)	$ (27,508,187)
Per share data:		
Basic and diluted net loss per share	$ (1.05)	$ (2.63)
Weighted average common shares outstanding, basic and diluted	9,329,157	10,441,880

The accompanying notes are an integral part of these financial statements.

Liquidia Technologies, Inc.

Statement of Stockholders' Deficit

(unaudited)

	Preferred Stock												Common Stock						
	Series A		Series A-1		Series B		Series C		Series C-1		Series D		Class A Voting		Class B Nonvoting		Additional Paid-In Capital	Accumulated Deficit	Stockholders' Deficit
	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount			
Balance as of December 31, 2017	1,974,430	$ 1,974	1,834,862	$ 1,835	4,496,908	$ 4,497	17,102,578	$ 17,103	17,556,178	$ 17,556	—	$ —	9,254,228	$ 9,254	330,664	$ 331	$ 79,668,525	$(113,413,311)	$ (33,692,236)
Cumulative adjustment — adoption of ASC 606	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(504,725)	(504,725)
Exercise of stock options	—	—	—	—	—	—	—	—	—	—	—	—	867,991	868	—	—	149,821	—	150,689
Stock-based compensation	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	341,314	—	341,314
Issuance of Series D preferred stock, net	—	—	—	—	—	—	—	—	—	—	91,147,482	91,147	—	—	—	—	53,895,376	—	53,986,523
Net loss	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(27,508,187)	(27,508,187)
Balance as of March 31, 2018	1,974,430	$ 1,974	1,834,862	$ 1,835	4,496,908	$ 4,497	17,102,578	$ 17,103	17,556,178	$ 17,556	91,147,482	$ 91,147	10,122,219	$ 10,122	330,664	$ 331	$134,055,036	$(141,426,223)	$ (7,226,622)

The accompanying notes are an integral part of these financial statements.

Liquidia Technologies, Inc.

Statements of Cash Flows

(unaudited)

	Three Months Ended March 31,	
	2017	2018
Operating activities		
Net loss	$ (9,836,746)	$ (27,508,187)
Adjustments to reconcile net loss to net cash used in operating activities:		
Stock-based compensation	127,199	341,314
Depreciation	223,066	324,854
Amortization of discount on long-term debt	1,966,028	17,550,541
Non-cash interest expense	221,192	227,186
Derivative fair value adjustment	206,727	—
Warrant fair value adjustment	616,324	753,887
Non-cash rent (income) expense	98,129	(51,465)
Lease incentive	258,482	—
Changes in operating assets and liabilities:		
Accounts and related party receivables	(778,653)	1,004,778
Prepaid expenses and other current assets	(18,699)	(178,326)
Other non-current assets	(622,835)	(5,433)
Accounts payable	(313,785)	(566,020)
Accrued expenses	397,402	(404,408)
Accrued compensation	(835,100)	(1,207,382)
Deferred revenue	(750,804)	(281,600)
Net cash used in operating activities	(9,042,073)	(10,000,261)
Investing activities		
Purchases of property, plant and equipment	(50,841)	(257,067)
Net cash used in investing activities	(50,841)	(257,067)
Financing activities		
Principal payments on capital lease obligations	(86,802)	(151,430)
Proceeds from issuance of convertible notes	11,796,168	—
Proceeds from issuance of long-term debt	4,000,000	—
Refund of principal payments on long-term debt	—	588,889
Principal payments on long-term debt	—	(912,011)
Payments for debt issuance costs	(10,892)	(392,000)
Payments for deferred offering costs	—	(58,734)
Proceeds from issuance of Series D preferred stock, net of issuance costs	—	25,206,742
Proceeds from exercise of stock options and warrants	5,434	150,689
Net cash provided by financing activities	15,703,908	24,432,145
Net increase in cash	6,610,994	14,174,817
Cash, beginning of period	1,438,712	3,418,979
Cash, end of period	$ 8,049,706	$ 17,593,796
Supplemental disclosure of cash flow information		
Cash paid for interest	$ 59,228	$ 99,069
Purchase of equipment with capital leases	$ 101,348	$ 96,595
Changes in purchases of equipment in accounts payable	$ 11,908	$ 147,042
Purchase of build-to-suit asset with deferred financing obligation	$ —	$ 272,656
Reclassification of deferred financing obligation to long-term debt	$ —	$ 1,614,466
Reclassification of financing costs on deferred financing obligation to discount on long-term debt	$ —	$ 277,009
Recording of warrant liabilities with corresponding discount on convertible notes	$ 4,474,122	$ —
Recording of derivative liabilities with corresponding discount on convertible notes	$ 4,365,880	$ —
Conversion of convertible notes and accrued interest into Series D preferred stock	$ —	$ 28,877,498
Recording of discount on convertible notes as paid-in capital for beneficial conversion feature	$ 2,956,166	$ —
Deferred offering costs incurred but not paid	$ —	$ 744,548
Preferred stock issuance costs in accounts payable	$ —	$ 97,717

The accompanying notes are an integral part of these financial statements.

Liquidia Technologies, Inc.

Notes to Financial Statements

(unaudited)

1. Organization and Description of the Business

Liquidia Technologies, Inc. ("Liquidia" or the "Company"), is a late-stage clinical biopharmaceutical company focused on the development and commercialization of human therapeutics using the Company's proprietary PRINT technology to transform the lives of patients. PRINT is a particle engineering platform that enables precise production of uniform drug particles designed to improve the safety, efficacy and performance of a wide range of therapies. The Company is currently focused on the development of two product candidates for which it holds worldwide commercial rights: LIQ861 for the treatment of pulmonary arterial hypertension and LIQ865 for the treatment of local post-operative pain.

The development and commercialization activities are conducted at the Company's headquarters located in Morrisville, North Carolina. The Company was incorporated under the laws of the state of Delaware in 2004.

2. Significant Accounting Policies

Basis of Presentation

The unaudited interim financial statements as of and for the three months ended March 31, 2017 and 2018, have been prepared by the Company pursuant to the rules and regulations of the Securities and Exchange Commission ("SEC") for interim financial reporting. These financial statements are unaudited and, in the opinion of management, include all adjustments (consisting of normal recurring adjustments and accruals) necessary for a fair statement of the balance sheets, operating results and cash flows for the periods presented in accordance with accounting principles generally accepted in the United States of America ("GAAP"). Operating results for the three months ended March 31, 2018, are not necessarily indicative of the results that may be expected for the fiscal year ended December 31, 2018. Certain information and footnote disclosures normally included in the annual financial statements prepared in accordance with GAAP have been omitted in accordance with the SEC's rules and regulations for interim reporting. The Company's financial position, results of operations and cash flows and are presented in U.S. Dollars.

The accompanying unaudited financial statements and related notes should be read in conjunction with the Company's audited financial statements for the years ended December 31, 2016 and 2017.

The Company adopted the Financial Accounting Standards Board ("FASB") Accounting Standards Update ("ASU 2014-09"), *Revenue from Contracts with Customers* ("Topic 606") on January 1, 2018. There have been no other material changes to the Company's significant accounting policies during the three months ended March 31, 2017 and 2018, as compared to the significant accounting policies disclosed in Note 2 of the financial statements for the years ended December 31, 2016 and 2017.

Variable Interest Entities

The Company identifies entities (i) that do not have sufficient equity investment at risk to permit the entity to finance its activities without additional subordinated financial support or (ii) in which the equity investors lack an essential characteristic of a controlling financial interest as variable interest entities ("VIE" or "VIEs"). The Company performs an initial and on-going evaluation of the entities with which the Company has variable interests to determine if any of these entities are VIEs. If an entity is identified as a VIE, the Company performs an assessment to determine whether the Company has both (i) the power to direct activities that most significantly impact the VIE's economic performance and (ii) the obligation to absorb losses from or the right to receive benefits of the VIE that could potentially be significant to the VIE. If both

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

(unaudited)

2. Significant Accounting Policies (Continued)

of these criteria are satisfied, the Company is identified as the primary beneficiary of the VIE and the entity must be consolidated.

Envisia Therapeutics Inc.

As of December 31, 2017 and March 31, 2018, the Company determined that Envisia Therapeutics Inc. ("Envisia") was a variable interest entity ("VIE") as the Company is not the primary beneficiary for Envisia.

The Company accounts for this investment as an equity method investment. Envisia has operated at a net loss since the spin out date and therefore full impairment in the basis of the equity investment was recorded in 2013, the year of initial recognition of the investment. As such, the aggregate investment balance of this VIE as of December 31, 2017 and March 31, 2018, was $0. The initial investment amount recorded represents the Company's maximum risk of loss related to the identified VIE. As of December 31, 2017 and March 31, 2018, Liquidia's common equity ownership percentage in Envisia was approximately 75%, and its ownership percentage of voting shares was 4.4%.

Going Concern

The Company's financial statements have been prepared assuming the Company will continue as a going concern, which contemplates the realization of assets and the settlement of liabilities and commitments in the normal course of business.

The Company's operations have consisted primarily of developing its technology, developing products, prosecuting its intellectual property and securing financing. The Company has incurred recurring losses and cash outflows from operations, has an accumulated deficit, and has debt maturing within twelve months. The Company expects to continue to incur losses in the foreseeable future and will require additional financial resources to continue to advance its products and intellectual property, in addition to repaying its maturing debt and other obligations.

These circumstances raise substantial doubt about the Company's ability to continue as a going concern. Management's plans with regard to this matter include attempts to obtain additional financing from its current investors and new investors to sustain its operations or to pursue other financing alternatives. However, there is no assurance that the Company will be successful in obtaining sufficient financing on terms acceptable to the Company, and the failure of the Company to obtain sufficient funds on acceptable terms, when needed, could have a material adverse effect on the Company's business, results of operations and financial condition. If sufficient financings are not obtained, this may necessitate other actions by the Company. The financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities as of the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual amounts could differ from those estimates.

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

(unaudited)

2. Significant Accounting Policies (Continued)

Equity Method Investments

The Company holds investments in equity method investees. Investments in equity method investees are those for which the Company has the ability to exercise significant influence but does not control and is not the primary beneficiary. Significant influence typically exists if the Company has a 20% or more voting interest in the venture, unless predominant evidence to the contrary exists. Under this method of accounting, the Company records its proportionate share of the net earnings or losses of equity method investees and a corresponding increase or decrease to the investment balances. Cash payments to equity method investees such as additional investments, loans and advances, as well as payments from equity method investees such as dividends, distributions and repayments of loans and advances, are recorded as adjustments to investment balances. The Company evaluates its equity method investments for impairment whenever events or changes in circumstances indicate that the carrying amounts of such investments may not be recoverable.

Accounts Receivable

Accounts receivable are stated at historical cost less an allowance for doubtful accounts as of each Balance Sheet date. The Company does not accrue interest on trade receivables. On a periodic basis, the Company evaluates its accounts receivable and establishes an allowance based on its history of collections and write-offs and the current status of all receivables. The Company writes off customer receivables when it becomes apparent, based upon customer facts and circumstances, that such amounts will not be collected.

Concentration of Credit Risk

Financial instruments that potentially subject the Company to concentrations of credit risk consist of cash and accounts receivable. The Company is exposed to credit risk, subject to federal deposit insurance, in the event of default by the financial institutions holding its cash to the extent of amounts recorded on the Balance Sheet. With regards to cash, 100% of the Company's cash is held on deposit with Pacific Western Bank. With regards to revenues and accounts receivable, GlaxoSmithKline ("GSK" and "GSK Inhaled") accounted for 92% and 47% of the Company's revenues for the three months ended March 31, 2017 and 2018, respectively, and $1.1 million or 69% and $0.2 million or 36% of the Company's accounts receivable as of December 31, 2017 and March 31, 2018, respectively.

Deferred Rent

Rent expense is recognized on a straight-line basis over the life of the lease. The difference between rent expense recognized and rental payments, as stipulated in the lease, is reflected as deferred rent in the accompanying Balance Sheets and amortized over the life of the lease. In addition, deferred rent also includes landlord incentives on a portion of the leasehold improvement cost, which is amortized over the life of the lease.

Revenue Recognition

In May 2014, the FASB issued Accounting Standards Update ("ASU") 2014-09, *Revenue from Contracts with Customers* ("Topic 606"). The FASB issued Topic 606 to clarify the principles for recognizing revenue and to develop a common revenue standard for U.S. GAAP. The standard outlines a single comprehensive model for entities to use in accounting for revenue arising from contracts with customers and supersedes

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

(unaudited)

2. Significant Accounting Policies (Continued)

the most current revenue recognition guidance. Topic 606 also includes Subtopic 340-40, *Other Assets and Deferred Costs — Contracts with Customers*, which requires the deferral of incremental costs of obtaining a contract with a customer and certain contract fulfillment costs. The Company adopted this standard and all the related amendments ("new revenue standard") on January 1, 2018, applying the modified retrospective method. The modified retrospective transition method is applied on a prospective basis from the adoption date and does not recast historical financial statement periods. Any contracts with customers that were not complete as of the adoption date are reviewed and the Company recognized the cumulative effect of initially applying the new revenue standard as an adjustment to the opening balance of accumulated deficit as of January 1, 2018. Financial information in comparative periods have not been restated and continue to be reported under the accounting methods in effect for that period.

This adoption primarily affected the recognition of non-refundable up-front fees and milestone payments. The Company previously recognized non-refundable up-front fees as deferred revenue which was recognized into revenue on a straight-line basis over the estimated period of the Company's substantive performance obligations, as a component of a multiple element arrangement. Milestone payments were previously accounted for under Accounting Standards Codification ("ASC") 605-28-50-2(e), which had required recognition of a milestone payment when the applicable event was considered to be both substantive and achieved. The adoption of the new revenue standard generally requires licenses that are not considered distinct performance obligations from other goods or services within a contract to be bundled with those goods or services as a combined performance obligation. Revenue associated with the combined performance obligation is recognized over time as those goods or services are delivered.

The adoption of the new revenue standard also impacted the deferral of sublicense payments related to the milestone payments, which were previously expensed when the milestone payments were recognized, and the timing of recognition of deferred sublicense payments related to upfront license payments. Under the new revenue standard, the incremental sublicense payments related to milestone payments will be deferred as contract fulfillment costs and amortized over time, consistent with the method of recognition for the related revenues.

The cumulative effect of the changes made to the January 1, 2018 balance of accumulated deficit on the Balance Sheet for the adoption of Topic 606 was $0.5 million as follows:

Balance Sheet:	Balance at December 31, 2017	Adjustments Due to Topic 606	Balance at January 1, 2018
		(unaudited)	(unaudited)
Assets			
Prepaid expenses and other current assets	$ 443,460	$ 10,552	$ 454,012
Prepaid expenses and other assets	1,115,972	45,529	1,161,501
Liabilities			
Current portion of deferred revenue	3,605,199	105,511	3,710,710
Long-term deferred revenue	5,527,296	455,295	5,982,591
Stockholders' deficit			
Accumulated deficit	(113,413,311)	(504,725)	(113,918,036)

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

(unaudited)

2. Significant Accounting Policies (Continued)

In accordance with the new revenue standard requirements, the impact of adoption on the Statement of Operations and Comprehensive Loss and Balance Sheet was as follows:

	For the Three Months Ended March 31, 2018		
Statement of Operations and Comprehensive Loss:	**As Reported (unaudited)**	**Balances Without Adoption of Topic 606 (unaudited)**	**Effect of Change Higher/(Lower) (unaudited)**
Revenues	$ 925,970	$ 1,121,648	$ (195,678)
Costs and expenses			
Cost of sales	27,049	46,617	(19,568)
Net loss	(27,508,187)	(27,332,077)	176,110

	March 31, 2018		
Balance Sheet:	**As Reported (unaudited)**	**Balances Without Adoption of Topic 606 (unaudited)**	**Effect of Change Higher/(Lower) (unaudited)**
Assets			
Prepaid expenses and other current assets	$ 329,064	$ 511,975	$ (182,911)
Prepaid expenses and other assets	2,273,491	2,037,444	236,047
Liabilities			
Current portion of deferred revenue	431,374	2,260,481	(1,829,107)
Long-term deferred revenue	8,980,330	6,619,860	2,360,470
Stockholders' deficit			
Accumulated deficit	(141,426,223)	(140,947,996)	478,227

Segment Data

The Company manages, reports and evaluates its business in the following two segments: Pharmaceutical Products (formerly named Specialty Pharmaceutical) and Partnering and Licensing. The Company's reportable operating segments have been determined in accordance with the Company's internal management structure, which is organized based on operating activities, the manner in which the Company organizes segments for making operating decisions and assessing performance and the availability of separate financial results. Unallocated operations and corporate expenses, such as depreciation, facilities costs, corporate management costs and interest expense, are represented within Corporate / Operations.

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

(unaudited)

2. Significant Accounting Policies (Continued)

Pharmaceutical Products — The Company utilizes its proprietary PRINT technology to develop novel drug products (such as LIQ861 and LIQ865) based on presently commercialized drug products. The Company has not commenced commercialization of its pharmaceutical drug products and has not recognized any revenues to date. The Company intends to commercialize LIQ861 independently in the United States and intends to evaluate its commercialization and development plans for LIQ865. Revenues from these licensing arrangements would be recognized in this segment. In addition, if LIQ861 or LIQ865 are approved for marketing, the Company expects to recognize any revenues from sales of that product in this segment.

Partnering and Licensing — The Company utilizes its proprietary PRINT technology to enable the development of drug products by other pharmaceutical companies. The Company assists these customers in the development of their drug products through research and development services like particle formulation and manufacturing at market billing rates. The Company also typically receives up-front fees or technology access payments and milestone payments for each phase of clinical achievement. If these drug products achieve commercialization, the Company also expects to be eligible to receive royalties from the sale of their drug products.

For the three months ended March 31, 2017 and 2018, the majority of the Company's revenue from collaborating and licensing was derived from one agreement with GSK, namely the GSK Inhaled Collaboration and Option Agreement. The arrangements with GSK accounted for $1,504,084 and $438,351, representing 92% and 47% of total revenue for the three months ended March 31, 2017 and 2018, respectively. This revenue was comprised of billings for research and development services and amortization of deferred revenue from milestone payments and up-front payments.

The segment data is reflected below for the three months ended March 31, 2017 and 2018, as follows:

	2017 (unaudited)	2018 (unaudited)
Revenues:		
Pharmaceutical Products	$ —	$ —
Partnering and Licensing	1,639,175	925,970
Total	1,639,175	925,970
Operating (loss) income:		
Pharmaceutical Products	(3,684,887)	(4,984,525)
Partnering and Licensing	406,479	532,784
Corporate / Operations	(3,488,991)	(4,425,764)
Total	(6,767,399)	(8,877,505)
Interest income	151	—
Interest expense	(2,246,447)	(17,876,795)
Derivative and warrant fair value adjustments	(823,051)	(753,887)
Net loss	$ (9,836,746)	$ (27,508,187)

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

(unaudited)

2. Significant Accounting Policies (Continued)

Segment information by asset is not disclosed as it is not reviewed by the Chief Operating Decision Maker or used to allocate resources or to assess the Company's operating results and financial performance. All long-lived assets are domiciled within the United States and all revenues were earned within the United States.

Research and Development Expense

Research and development costs are expensed as incurred and include direct costs incurred to third parties related to the salaries of, and stock-based compensation for, personnel involved in research and development activities, contractor fees, grant expenses, administrative expenses and allocations of research-related overhead costs. Administrative expenses and research-related overhead costs included in research and development expense consist of allocations of facility and equipment lease charges, depreciation and amortization of assets and insurance directly related to research and development activities.

Stock-Based Compensation

The Company accounts for stock-based compensation under the provisions of ASC 718, *Compensation — Stock Compensation* ("ASC 718"), which requires the measurement and recognition of compensation expense for all share-based payment awards made to employees and directors, including employee stock options, based on estimated fair values. ASC 718 requires companies to estimate the fair value of share-based awards on the grant date using an option pricing model. The value of the portion of the award that is ultimately expected to vest is recorded as expense over the requisite service periods in the Company's Statements of Operations and Comprehensive Loss.

The Company accounts for equity instruments issued to nonemployees in accordance with the provisions of ASC 505-50, *Equity-Based Payments to Non-Employees*, under which the stock-based compensation expense is recognized in the financial statements based on their grant date fair values. The Company values equity instruments, stock options and warrants for common stock granted to lenders and consultants using the Black-Scholes option pricing model. The measurement of non-employee stock-based compensation is recognized as an expense over the term of the related financing or the period over which services are received.

Net Loss Per Share

Basic net loss per share is computed by dividing the net loss by the weighted average number of common shares outstanding during the period.

Diluted net loss per share is computed by dividing net loss by the weighted average number of common shares adjusted for the dilutive effect of common equivalent shares outstanding during the period. Common stock equivalents consist of preferred stock, stock options and stock warrants. Net loss per share attributable to common stockholders is calculated using the two-class method, which is an earnings allocation formula that determines net loss per share for the holders of the Company's common shares and participating securities. The Company's convertible preferred stock contains participating rights in any dividend paid by the Company and are deemed to be participating securities. Net loss attributable to common stockholders and participating preferred shares are allocated to each share on an as-converted basis as if all of the earnings for the period had been distributed. The participating securities do not include a contractual obligation to share in the losses of the Company and are not included in the calculation of net

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

(unaudited)

2. Significant Accounting Policies (Continued)

loss per share in the periods that have a net loss. Common equivalent shares are excluded from the computation in periods in which they have an anti-dilutive effect on net loss per share.

Diluted net loss per share is computed using the more dilutive of (a) the two-class method or (b) the if-converted method. In periods in which the Company reports a net loss attributable to common stockholders, diluted net loss per share attributable to common stockholders is the same as basic net loss per share attributable to common stockholders since dilutive common shares are not assumed to have been issued if their effect is anti-dilutive. Diluted net loss per share is equivalent to basic net loss per share for all years presented herein because common stock equivalent shares from unexercised stock options, outstanding warrants, preferred stock and common shares expected to be issued under the Company's employee stock purchase plan were anti-dilutive. Due to their dilutive effect, the calculation of diluted net loss per share for the three months ended March 31, 2017 and 2018 does not include the following common stock equivalent shares:

	2017	2018
	(unaudited)	
Preferred Stock	64,165,282	167,402,423
Stock Options	12,455,051	23,783,999
Warrants	3,969,874	4,394,914
Total	80,590,207	195,581,336

For the three months ended March 31, 2017 and 2018, there were no reconciling items between Basic and Diluted loss per share.

Fair Value of Financial Instruments

The carrying values of cash, accounts receivable, and accounts payable at December 31, 2017 and March 31, 2018 approximated fair value due to the short maturity of these instruments.

The Company's valuation of financial instruments is based on a three-tiered approach, which requires that fair value measurements be classified and disclosed in one of three tiers. The fair value hierarchy defines a three-level valuation hierarchy for disclosure of fair value measurements as follows:

Level 1 — Quoted prices in active markets for identical assets or liabilities;

Level 2 — Other than quoted prices included in Level 1 inputs that are observable for the asset or liability, either directly or indirectly; and

Level 3 — Unobservable inputs for the asset and liability used to measure fair value, to the extent that observable inputs are not available.

The categorization of a financial instrument within the valuation hierarchy is based upon the lowest level of input that is significant to the fair value measurement.

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

(unaudited)

2. Significant Accounting Policies (Continued)

The following tables present the placement in the fair value hierarchy of financial instruments measured at fair value as of December 31, 2017 and March 31, 2018:

December 31, 2017	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Carrying Value
Pacific Western Bank Tranche I note	$ —	$ 2,512,301	$ —	$ 2,488,572
Pacific Western Bank Tranche II note	—	2,845,194	—	2,820,382
Pacific Western Bank Tranche III note	—	3,793,644	—	3,760,509
UNC promissory note	—	2,257,684	—	2,257,684
Convertible notes	—	—	28,702,268	9,837,984
Warrant liabilities	—	—	2,462,859	2,462,859
Total	$ —	$ 11,408,823	$ 31,165,127	$ 23,627,990

March 31, 2018 (unaudited)	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Carrying Value
Pacific Western Bank Tranche I note	$ —	$ 2,393,025	$ —	$ 2,390,769
Pacific Western Bank Tranche II note	—	2,726,844	—	2,738,319
Pacific Western Bank Tranche III note	—	3,635,792	—	3,651,093
CSC build-to-suit equipment financing	—	1,614,466	—	1,320,504
UNC promissory note	—	2,257,684	—	2,257,683
Warrant liabilities	—	—	3,216,746	3,216,746
Total	$ —	$ 12,627,811	$ 3,216,746	$ 15,575,114

The fair value of debt was measured as the present value of the respective future cash outflows discounted at a current interest rate as of the year-end date, taking into account the remaining term of liabilities.

Convertible Instruments

The Company has utilized various types of financing to fund its business needs, including convertible debt and convertible preferred stock, in some cases with corresponding warrants. The Company considered guidance within FASB ASC 470-20, *Debt with Conversion and Other Options*, ("ASC 470-20"), ASC 480, *Distinguishing Liabilities from Equity* ("ASC 480") and ASC 815, *Derivatives and Hedging* ("ASC 815"), when accounting for the issuance of convertible securities. Additionally, the Company reviews the instruments to determine whether they are freestanding or contain an embedded derivative and, if so,

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

(unaudited)

2. Significant Accounting Policies (Continued)

whether they should be classified in permanent equity, mezzanine equity or as a liability at each reporting period until the amount is settled and reclassified into equity.

When multiple instruments are issued in a single transaction, the Company allocates total proceeds from the transaction among the individual freestanding instruments identified. The allocation is made after identifying all the freestanding instruments and the subsequent measurement basis for those instruments. The subsequent measurement basis determines how the proceeds are allocated. Generally, proceeds are allocated based on one of the following methods:

- Fair value method — The instrument being analyzed is allocated a portion of the proceeds equal to its fair value, with the remaining proceeds allocated to the other instruments as appropriate.
- Relative fair value method — The instrument being analyzed is allocated a portion of the proceeds based on the proportion of its fair value to the sum of the fair values of all the instruments covered in the allocation.
- Residual value method — The instrument being analyzed is allocated the remaining proceeds after an allocation is made to all other instruments covered in the allocation.

Generally, when there are multiple instruments issued in a single transaction that have different subsequent measurement bases, the proceeds from the transaction are first allocated to the instrument that is subsequently measured at fair value (i.e., instruments accounted for as derivative liabilities) at its issuance date fair value, with the residual proceeds allocated to the instrument not subsequently measured at fair value. In the event both instruments in the transaction are not subsequently measured at fair value (i.e., equity-classified instruments), the proceeds from the transaction are allocated to the freestanding instruments based on their respective fair values, using the relative fair value method.

After the proceeds are allocated to the freestanding instruments, resulting in an initial discount on the host contract, those instruments are further evaluated for embedded features (i.e., conversion options) that require bifurcation and separate accounting as a derivative financial instrument pursuant to ASC 815. Embedded derivatives are initially and subsequently measured at fair value. Under ASC 815, a portion of the proceeds received upon the issuance of the hybrid contract is allocated to the fair value of the derivative.

The Company accounts for convertible instruments in which it is determined that the embedded conversion options should not be bifurcated from their host instruments in accordance with ASC 470-20. Under ASC 470-20, the Company records, when necessary, discounts to convertible notes or convertible preferred stock for the intrinsic value of conversion options embedded in the convertible instruments based upon the differences between the fair value of the underlying common stock at the commitment date of the transaction and the effective conversion price embedded in the convertible instrument, unless limited by the proceeds allocated to such instrument.

Warrant Liabilities

The Company has classified warrants to purchase shares of Series C-1 preferred stock as a liability on its Balance Sheets as these warrants were free-standing financial instruments that will require the Company to issue convertible securities upon exercise. The warrants were initially recorded at fair value on date of grant, and they will be subsequently remeasured to fair value at each reporting period. Changes in fair value of the

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

(unaudited)

2. Significant Accounting Policies (Continued)

warrants are recognized as a component of other income (expense) in the Statements of Operations and Comprehensive Loss. The Company will continue to adjust the liabilities for changes in fair value at each reporting period until the warrant liabilities are settled. Following an Initial Public Offering ("IPO") and the conversion of preferred stock into common stock, the Company will no longer include the warrant liabilities on the Balance Sheet or recognize changes in their fair value on the Statements of Operations and Comprehensive Loss.

The Company used the Black-Scholes option pricing model, which incorporates assumptions and estimates, to value the preferred stock warrants. The Company assessed these assumptions and estimates on a quarterly basis as additional information impacting the assumptions was obtained. Estimates and assumptions impacting the fair value measurement included the fair value per share of the underlying Series C-1 preferred stock, the remaining contractual term of the warrant, the risk-free interest rate, the expected dividend yield and the expected volatility of the price of the underlying preferred stock. The Company determined the fair value per share of the underlying preferred stock by taking into consideration the most recent sales of its convertible preferred stock, results obtained from third-party valuations and additional factors that were deemed relevant. The Company estimated its expected stock volatility based on the historical volatility of publicly traded peer companies for a term equal to the remaining contractual term of the warrant. The risk-free interest rate was determined by reference to the U.S. Treasury yield curve for time periods approximately equal to the remaining contractual term of the warrant. Expected dividend yield was based on the fact that the Company has never paid cash dividends and does not expect to pay any cash dividends in the foreseeable future.

Embedded Derivatives

Embedded derivatives that are required to be bifurcated from the underlying instrument are accounted for and valued as a separate financial instrument. In conjunction with the Company's Convertible Instruments, embedded derivatives exist associated with the future consummation of a qualified financing event, as defined, and a subsequent discounted conversion of the instrument to capital stock. The embedded derivatives are bifurcated and classified as derivative liabilities on the Balance Sheets and separately adjusted to their fair values at the end of each reporting period. Changes in fair values of the derivative liabilities are recognized as a component of other income (expense) in the Statements of Operations and Comprehensive Loss.

Issuance Costs Related to Equity and Debt

The Company allocates issuance costs between the individual freestanding instruments identified on the same basis as proceeds were allocated. Issuance costs associated with the issuance of stock or equity contracts (i.e., equity-classified warrants and convertible preferred stock) are recorded as a charge against the gross proceeds of the offering. Any issuance costs associated with the issuance of liability-classified warrants are expensed as incurred. Issuance costs associated with the issuance of debt (i.e., convertible debt) is recorded as a direct reduction of the carrying amount of the debt liability, but limited to the notional value of the debt. The Company accounts for debt as liabilities measured at amortized cost and amortizes the resulting debt discount to interest expense using the straight-line method over the expected term of the notes pursuant to ASC 835, *Interest* ("ASC 835"). To the extent that the reduction from issuance costs of the carrying amount of the debt liability would reduce the carrying amount below zero, such excess is recorded as interest expense.

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

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2. Significant Accounting Policies (Continued)

Deferred Offering Costs

The Company capitalizes certain legal, professional accounting and other third-party fees that are directly associated with in-process equity financings as deferred offering costs until such equity financings are consummated. After consummation of the equity financing, these costs are recorded in stockholders' deficit as a reduction of proceeds generated as a result of the offering. Should the planned equity financing be abandoned, the deferred offering costs will be expensed immediately as a charge to operating expenses in the Statement of Operations and Comprehensive Loss. As of December 31, 2017 and March 31, 2018, the Company recorded deferred offering costs relating to its IPO of $125,000 and $928,282, respectively, and these amounts are included in Prepaid Expenses and Other Assets in the accompanying Balance Sheets.

Income Taxes

The Company did not record a federal or state income tax benefit for the three and three months ended March 31, 2017 and 2018 due to its conclusion that a full valuation allowance is required against the Company's net deferred tax assets.

The asset and liability method is used in the Company's accounting for income taxes. Under this method, deferred tax assets and liabilities are determined based on differences between financial reporting and tax bases of assets and liabilities and are measured using the enacted tax rates and laws that are expected to be in effect when the differences are expected to reverse. The Company records a valuation allowance against deferred tax assets when realization of the tax benefit is uncertain.

A valuation allowance is recorded, if necessary, to reduce net deferred taxes to their realizable values if management does not believe it is more likely than not that the net deferred tax assets will be realized.

The Company may recognize the tax benefit from an uncertain tax position only if it is more likely than not that the tax position will be sustained on examination by the taxing authorities based on the technical merits of the position. The tax benefits recognized in the financial statements from such a position are measured based on the largest benefit that has a greater than 50% likelihood of being realized upon ultimate settlement.

On December 22, 2017, the Tax Cuts and Jobs Act (the "TCJA") was enacted into law. This new law includes significant changes to the U.S. corporate income tax system, including a permanent reduction in the corporate income tax rate from 35% to 21%, limitations on the deductibility of interest expense and executive compensation and the transition of U.S. international taxation from a worldwide tax system to a territorial tax system. The TCJA also limits interest expense deductions to 30% of taxable income before interest, depreciation and amortization from 2018 to 2021 and then taxable income before interest thereafter. The TCJA permits disallowed interest expense to be carried forward for five years. The Company has calculated its best estimate of the impact of the TCJA in its income tax provision in accordance with its understanding of the TCJA and guidance available. Using the guidance issued by the SEC staff in Staff Accounting Bulletin No. 118, the Company expects to complete the accounting for the TCJA when the 2017 U.S. federal income tax return is filed in 2018. The legislative changes effective for the tax year 2018 did not have a material impact on the Company's financial statements.

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

(unaudited)

2. Significant Accounting Policies (Continued)

Recent Accounting Pronouncements

In January 2016, the FASB issued ASU 2016-01, *Financial Instruments — Overall (Subtopic 825-10) — Recognition and Measurement of Financial Assets and Financial Liabilities* ("ASU 2016-01"). The provisions of ASU 2016-01 make targeted improvements to enhance the reporting model for financial instruments to provide users of financial statements with more useful information, including certain aspects of recognition, measurement, presentation and disclosure of financial instruments. The guidance is effective for public companies with annual periods and interim periods within those annual periods beginning after December 15, 2017, and is expected to be effective for the Company for the year ending December 31, 2018. The Company adopted this standard effective January 1, 2018 and the adoption of this standard did not have a material impact on the Company's financial statements.

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842)* ("ASU 2016-02"). The provisions of ASU 2016-02 set out the principles for the recognition, measurement, presentation and disclosure of leases for both lessees and lessors. The new standard requires lessees to apply a dual approach, classifying leases as either finance or operating leases based on the principle of whether or not the lease is effectively a financed purchase by the lessee. This classification will determine whether lease expense is recognized based on an effective interest method or on a straight-line basis over the term of the lease. A lessee is also required to record a right-of-use asset and a lease liability for all leases with a term of greater than 12 months regardless of their classification. Leases with a term of 12 months or less will be accounted for in a similar manner as under existing guidance for operating leases. ASU 2016-02 supersedes the previous lease standard, Topic 840, *Leases*. The guidance is effective for public companies with annual periods and interim periods within those annual periods beginning after December 15, 2018, and is expected to be effective for the Company for the year ending December 31, 2019. The Company is currently evaluating the impact that the implementation of this standard will have on the Company's financial statements.

In August 2016, the FASB issued ASU 2016-15, *Statement of Cash Flows (Topic 230) — Classification of Certain Cash Receipts and Cash Payments* ("ASU 2016-15"). The provisions of ASU 2016-15 address eight specific cash flow issues and how those certain cash receipts and cash payments are presented and classified in the statement of cash flows under Topic 230, *Statement of Cash Flows*, and other Topics. The guidance is effective for public companies with annual periods and interim periods within those annual periods beginning after December 15, 2017, with early adoption permitted. The Company adopted this standard effective January 1, 2018 and the adoption of this standard did not have a material impact on the Company's financial statements.

In May 2017, the FASB issued ASU 2017-09, *Compensation-Stock Compensation* (Topic 718): Scope of Modification Accounting, which clarifies when to account for a change to the terms or conditions of a share-based payment award as a modification. Under the new guidance, modification accounting is required only if the fair value, the vesting conditions, or the classification of the award (as equity or liability) changes as a result of the change in terms or conditions. The standard is effective for interim and annual reporting periods beginning after December 15, 2017, with early adoption permitted. The Company adopted this standard effective January 1, 2018 and the adoption of this standard did not have a material impact on the Company's financial statements.

In July 2017, the FASB issued ASU 2017-11, *Earnings Per Share* (Topic 260), Distinguishing Liabilities from Equity (Topic 480) and Derivatives and Hedging (Topic 815): I. Accounting for Certain Financial

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

(unaudited)

2. Significant Accounting Policies (Continued)

Instruments with Down Round Features; II. Replacement of the Indefinite Deferral for Mandatorily Redeemable Financial Instruments of Certain Nonpublic Entities and Certain Mandatorily Redeemable Noncontrolling Interests with a Scope Exception. Part I of this update addresses the complexity of accounting for certain financial instruments with "down round" features. Down round features are features of certain equity-linked instruments (or embedded features) that result in the strike price being reduced on the basis of the pricing of future equity offerings. Current accounting guidance creates cost and complexity for entities that issue financial instruments (such as warrants and convertible instruments) with down round features that require fair value measurement of the entire instrument or conversion option. Part II of this update addresses the difficulty of navigating Topic 480, *Distinguishing Liabilities from Equity*, because of the existence of extensive pending content in the FASB Accounting Standards Codification. This pending content is the result of the indefinite deferral of accounting requirements about mandatorily redeemable financial instruments of certain nonpublic entities and certain mandatorily redeemable noncontrolling interests. The amendments in Part II of this update do not have an accounting effect. This ASU is effective for fiscal years, and interim periods within those years, beginning after December 15, 2018. The Company is evaluating the effect that ASU 2017-11 will have on its financial statements and related disclosures.

3. Common and Preferred Stock

Authorized Capital

As of March 31, 2018, the authorized capital of the Company consisted of 449,540,280 shares of capital stock, $0.001 par value per share, of which 265,000,000 shares are designated as Class A voting common stock ("Class A"), 330,664 shares are designated as Class B nonvoting common stock ("Class B") and 184,209,616 are designated as preferred stock. Of the designated preferred stock, 1,974,430 shares are designated as Series A Preferred Stock ("Series A"), 1,834,862 shares are designated as Series A-1 Preferred Stock ("Series A-1"), 4,620,123 shares are designated as Series B Preferred Stock ("Series B"), 17,102,578 shares are designated as Series C Preferred Stock ("Series C"), 21,254,306 shares are designated as Series C-1 Preferred Stock ("Series C-1"), and 137,423,317 shares are designated as Series D Preferred Stock ("Series D").

In June 2015, the Board approved an extension of the term of the Liquidia Technologies, Inc. Stock Option Plan (the "2004 Plan") by two additional years and an expansion of the pool of available shares by 5,000,000 shares, of which 3,374,000 were approved for grant to existing management. The Company had reserved a total of 18,299,642 shares of Class A Voting common stock for issuance under the 2004 Plan.

In May 2016, the Board approved a new second stock option plan (the "2016 Plan"). The option pool of shares available to issue under the 2016 Plan was established as 1,400,000 shares.

During 2017, the Company issued an aggregate of $27.4 million in principal of convertible promissory notes (see Note 10). The convertible notes had an original maturity date of December 31, 2018, as amended, and bore interest at eight percent (8%) per annum. Interest was earned daily and computed on the actual number of days elapsed until all the amounts under the notes have been paid in full. The convertible notes carried multiple conversion scenarios into equity with various discounts.

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

(unaudited)

3. Common and Preferred Stock (Continued)

In February 2018, the Company received proceeds of $25.6 million in exchange for the corresponding sale of Series D and related rights offering to new and existing investors. The applicable issue price per share for the Series D preferred stock was $0.59808, subject to adjustment as provided in the certificate of incorporation. In addition, all outstanding convertible notes, plus accrued interest, totaling $28.9 million were converted into Series D preferred stock at the same price per share without a discount. In total, 91,147,482 shares of Series D preferred stock were issued. Each share of Series D preferred stock is voting and is convertible at any time into a share of Class A voting common stock with such conversion ratio subject to future adjustment. Conversion is automatic upon a qualified financing, as defined. Each series of preferred stock has anti-dilution protection in the event of a dilutive issuance, as defined in the certificate of incorporation. The Series D stock bears an 8% per annum noncumulative dividend ($0.0478 per Series D preferred share) when and if declared. The Series D has a liquidation preference equal to the aggregate of the proceeds and the note conversions, or $54.5 million plus accrued but unpaid dividends, after which holders of Series D participate with all other stockholders in the remainder of liquidation proceeds on an as converted basis. The Series D is senior to all other series of preferred stock.

In conjunction with the sale of Series D preferred stock, the Board approved an expansion of the pool under the 2016 Plan by an additional 21,198,804 shares. In March 2018, the Board approved the grants of 13,670,767 stock options with an exercise price of $0.55 per share and 2,146,767 restricted stock units, leaving 5,915,157 shares available for future stock option grants as of March 31, 2018.

Common Stock

Upon any voluntary or involuntary liquidation, dissolution or winding up of the affairs of the Company, the holders of the Class A voting common stock shall be entitled to receive that portion of the remaining funds to be distributed to the stockholders, subject to the liquidation preferences of the preferred stock, on a pro-rata basis with the holders of the Class B nonvoting common stock. Such funds shall be paid to the holders of the Class A voting common stock and Class B nonvoting common stock on the basis of the number of shares so held by each of them.

The Class B nonvoting common stock has mandatory conversion provisions (one-for-one) into Class A voting common stock, as declared by the Board of Directors and approved by the holders of a majority of the then issued and outstanding shares of Class A voting common stock, or immediately prior to an IPO.

Warrants

In connection with historical private placement offerings, the Company issued warrants to purchase its preferred stock with an exercise term of ten years from the date of issuance. Pursuant to the terms of the warrants, upon the conversion of the preferred stock underlying the warrant into common stock, the warrants automatically become exercisable for common stock based upon the conversion ratio of the underlying preferred stock.

At March 31, 2018, the Company had warrants outstanding to purchase 3,698,128 shares of the Company's Series C-1 Preferred stock with an exercise price of $.001 per share. As of March 31, 2018, the warrants for 3,698,128 shares of Series C-1 preferred stock convert into warrants for 4,394,914 shares of Class A common stock at the same time as all outstanding Series C-1 preferred shares have been converted to Class A common stock. The Series C-1 preferred stock will automatically convert into common stock

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

(unaudited)

3. Common and Preferred Stock (Continued)

immediately prior to the closing of an IPO of the Company's stock, if such warrants have not previously expired.

As of December 31, 2017, there were outstanding warrants for 123,215 shares of Series B preferred stock that were convertible into warrants for 246,746 shares of Class A common stock at the same time as all outstanding Series B preferred shares have been converted to Class A common stock. These Series B warrants had an exercise price of $3.56 per share and expired on March 28, 2018.

4. Stock Options

In November 2004, the Board of Directors adopted, and the stockholders approved, the Plan to create an additional incentive for employees, directors, consultants and advisors. The Plan authorized the issuance of stock options to be granted as incentive stock options along with nonqualified stock options, restricted stock and other stock-based awards. The Board of Directors determines the exercise price of all options granted. The options vest based on terms provided for in the individual stock option agreements issued pursuant to the 2004 Plan. Options generally vest on a monthly basis over a period of up to 4 years and have a contractual life of ten years.

The 2016 Plan is the successor to the 2004 Plan. The terms of the 2016 Plan are similar to the 2004 Plan. The 2016 Plan provides for accelerated vesting under certain change of control transactions. Determining the appropriate fair value model and the related assumptions requires judgment. The fair value of each option grant is estimated using a Black-Scholes option pricing model. The following table summarizes the assumptions used for estimating the fair value of stock options granted during:

	Three Months Ended March 31,	
	2017	2018
	(unaudited)	(unaudited)
Expected dividend yield	—%	—%
Risk-free interest rate	1.34%	2.67% - 2.74%
Volatility	78%	78% - 79%
Expected life	6.25 years	6.25 years
Weighted-average fair value per share	$0.83	$0.44

The Company considers many factors when estimating expected forfeitures, including the employee or consultant class and historical experience. The Company does not maintain an internal market for its shares, and its shares are not traded privately or publicly. Therefore, the Company estimates volatility based upon the identification of similar public entities for which option price information is available to consider the historical, expected or implied volatility of those entities' share prices in estimating the Company's expected volatility. The expected term of options and warrants granted represents the period that options and warrants granted are expected to be outstanding. The risk-free interest rate for periods within the contractual life of the option and warrant is based on the yield of the U.S. Treasury securities at the time of

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

(unaudited)

4. Stock Options (Continued)

grant. The Company amortizes the fair value, net of estimated forfeitures, over the remaining vesting term on a straight-line basis.

The following table summarizes stock option activity under the 2004 Plan and the 2016 Plan:

	Shares Available for Issuance (unaudited)	Options Outstanding (unaudited)	Weighted Average Exercise Price (unaudited)
Balance at December 31, 2017	524,887	11,245,985	$ 0.27
Shares reserved for future issuance	19,052,037	—	
Granted	(13,670,767)	13,670,767	$ 0.55
Exercised	—	(867,991)	$ 0.18
Cancelled/expired from 2004 Plan	—	(255,762)	$ 0.39
Cancelled/expired from 2016 Plan	9,000	(9,000)	$ 1.21
Balance at March 31, 2018	5,915,157	23,783,999	$ 0.45

The following summarizes certain information about stock options vested and expected to vest as of March 31, 2018:

	Number of Options (unaudited)	Weighted Average Remaining Contractual Life (In Years) (unaudited)	Weighted Average Exercise Price (unaudited)
Outstanding and expected to vest	21,849,927	8.68	$ 0.44
Vested and exercisable	7,981,145	5.23	$ 0.28

The weighted-average grant date price per share was $1.21 and $0.55 per share for the shares issued during the three months ended March 31, 2017 and 2018, respectively.

During the three months ended March 31, 2017, 20,037 stock options were exercised for the purchase of common stock for total proceeds of $5,434. The intrinsic value for the options exercised was $18,811. During the three months ended March 31, 2018, 867,991 stock options were exercised for the purchase of common stock for total proceeds of $150,689. The intrinsic value for the options exercised approximated $433,469.

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

(unaudited)

4. Stock Options (Continued)

At March 31, 2018, the intrinsic value of options outstanding and exercisable was $5,313,825. The weighted average remaining contractual term of options outstanding and exercisable is 8.68 years as of March 31, 2018.

During the three months ended March 31, 2017 and 2018, stock-based compensation expense for employee stock option awards totaled $127,199 and $341,314, respectively. As of March 31, 2018, there was $5,741,554 of total unrecognized compensation cost related to non-vested stock option grants, which is expected to be recognized over a weighted-average period of 2.3 years.

Stock Option Modifcation

During the three months ended March 31, 2018, certain stock options were modified pursuant to a separation agreement with one of the Company's former Senior Vice Presidents. A total of 343,000 options had their term extended to include the term of the post-separation consulting agreement of up to two months, resulting in additional stock option expense of $17,497 for the three months ended March 31, 2018.

5. License Agreements

Liquidia performs research under a license agreement with the UNC as amended to date, ("UNC Letter Agreement"). As part of the UNC Letter Agreement, Liquidia holds an exclusive license to certain research and development technologies and processes in various stages of patent pursuit, for use in its research and development and commercial activities, with a term until the expiration date of the last to expire patent subject to the UNC Letter Agreement, subject to industry standard diligence milestones. Under the UNC Letter Agreement, Liquidia is obligated to pay UNC royalties equal to a low single-digit percentage of all net sales of Liquidia drug products whose manufacture, use or sale includes any use of the technology or patent rights covered by the UNC Letter Agreement. Liquidia may grant sublicenses of UNC licensed intellectual property in return for specified payments based on a percentage of any fee, royalty or other consideration received.

In connection with the research, development and licensing agreements (see Note 6) entered into with GSK in June 2012, Liquidia paid sublicense fees to UNC and amortized each into research and development expense over the period of specific performance with GSK. Also, in connection with that sublicense fee, Liquidia agreed to issue $1.2 million of Series C-1 preferred shares to UNC under the same terms provided to other Series C-1 holders and an unsecured promissory note for $0.6 million. Refer to Note 10 for additional details on the unsecured promissory note.

In 2012 and 2015, GSK Vaccines and GSK Inhaled made up-front payments to the Company of $14.0 million and $20.0 million combined, respectively. On such payments, the Company incurred sublicense fees to UNC of $2.8 million and $2.5 million, respectively, which are being amortized into Cost of Sales in the accompanying Statements of Operations and Comprehensive Loss on a straight-line basis over the corresponding periods of revenue recognition of the related payments.

In June 2016, Liquidia entered into an amendment to the UNC Letter Agreement, whereby the date for completion of a milestone requiring launch of a commercial product was extended from January 1, 2018 to December 31, 2020. In addition, a 2016 letter agreement was accepted by UNC that detailed Liquidia's efforts in satisfying the obligations of two milestones related to developing and commercializing the licensed

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

(unaudited)

5. License Agreements (Continued)

technology under the UNC Letter Agreement as of December 31, 2015, and accepted such efforts as satisfying the two milestones dated January 1, 2016. The 2016 letter agreement also included extending the maturity date of the promissory note (see Note 10) to December 31, 2017 and payment of an additional $1.5 million fee in exchange for modifying these progress milestones required under the UNC Letter Agreement. In December 2017, the Company executed an amendment to the UNC Letter Agreement that extends the maturity date of the promissory note from December 31, 2017 to June 30, 2018.

6. Revenue From Contracts With Customers

The Company derives revenues primarily from licensing its proprietary PRINT technology and from performing research and development services. Revenues are recognized as services are performed in an amount that reflects the consideration we expect to be entitled to in exchange for those services and technology.

In June 2012, the Company entered into a collaboration, as well as a license option and equity agreement, with GSK Inhaled, which is based in the United Kingdom. The agreements included up-front payments for option license rights to certain life science fields, research and development and manufacturing funding amounting to $14.0 million for up to three years, and key license terms, including extension and license fees, milestone payments and royalties on product sales. The Company recognized the non-refundable up-front fees into revenue over three years, in line with the term of the original agreement. In 2012, in connection with GSK's interest in the Company's technology, GSK invested $3.8 million in a Series C-1 preferred stock financing.

In September 2015, GSK Inhaled exercised the option to permanently license the technology for a non-refundable payment to the Company of $15.0 million. Pursuant to the license provisions of the collaboration agreement, GSK Inhaled is potentially required to pay Liquidia for certain milestones reached in the aggregate maximum amount of $158.0 million, and GSK Inhaled is required to pay Liquidia tiered royalties on the worldwide sales of the licensed products at percentages in the mid-single digits, based on net revenues from nonproprietary and proprietary products. Also during 2014 and 2015, the Company entered into other agreements under this collaboration, primarily for research services.

In June 2016, the Company entered into a development and license agreement with G&W Laboratories ("G&W") to develop multiple products for topical delivery in dermatology using the Company's PRINT technology (the "G&W Agreement"). The first non refundable up front fee of $1.0 million was received in June 2016. Research and development services commenced in July 2016 on the first program pursuant to this agreement.

The Company's research, development and licensing agreements provide for multiple performance obligations to be satisfied by the Company and include a license to the Company's technology in a particular field of study, participation in collaboration committees, performance of certain research and development services and obligations for certain manufacturing services. The transaction price for these contracts includes non-refundable fees and fees for research and development services. Non-refundable up-front fees which may include, for example, an initial payment upon effectiveness of the contractual relationship or payment to secure a right for a future license, are recorded as deferred revenue and recognized into revenue over time as the Company provides the research services under the contract required to advanced the products to the point where the Company is able to transfer control of the licensed

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

(unaudited)

6. Revenue From Contracts With Customers (Continued)

technology to the customer ("Technology Transfer"). The contract consideration may also include additional non-refundable payments due to the Company based on the achievement of research, development, regulatory or commercialization milestone events. The Company includes an estimate of the probable amount of milestone payments to which it will be entitled in the transaction price. The estimate requires evaluation of factors which are outside of the Company's control and significantly limit the Company's ability to achieve the remaining milestone payments. Therefore, the Company has not included any future milestone payments in the transaction price allocated to research, development and licensing agreements as of March 31, 2018. The Company revises the transaction price to include milestone payments once the specific milestone achievement is not considered to be subject to a significant reversal of revenue. At that time, the estimated transaction price is adjusted and a cumulative catch-up adjustment is recorded to adjust the amount of revenue to be recognized from the license inception to the date the milestone was deemed probable of achievement. The milestone is included with other non-refundable up-front fees and recognized into revenue over time as the Company continues to provide services under the contract prior to the Company's Technology Transfer. The amount of revenue recognized is based on the proportion of total research services performed to date to the expected services to be provided until Technology Transfer is expected to occur.

The estimate of the research services to be provided prior to the Technology Transfer requires significant judgment to evaluate assumptions regarding the level of effort required for the Company to have performed sufficient obligations for the customer to be able to utilize the licensed technology without requiring further services from the Company. If the estimated level of effort changes, the remaining deferred revenue is recognized over the revised period in which the expected research services required to achieve Technology Transfer. Changes in estimates occur for a variety of reasons, including but not limited to (i) research and development acceleration or delays, (ii) customer prioritization of research projects, or (iii) results of research and development activities. The Company recognizes the consideration expected to be received for research and development services, which are primarily billed quarterly in arrears on a time and materials basis, as the services are performed and collection is reasonably assured.

Royalties related to product sales will be recognized as revenue when the sale occurs since payments relate directly to products that will have been fully developed and for which the Company will have satisfied all of its performance obligations.

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

(unaudited)

6. Revenue From Contracts With Customers (Continued)

The following tables represent a disaggregation of revenue by each significant research, development and licensing agreement and payment type for the three months ended March 31, 2017 and 2018:

	Revenue for the Three Months Ended March 31, 2017 From			
	Non-Refundable Payments			
Under Topic 605	Milestones (unaudited)	Up-front Payments (unaudited)	Research and Development Services (unaudited)	Total (unaudited)
GSK Inhaled	$ —	$ 750,000	$ 754,084	$ 1,504,084
Gates Foundation	—	36,408	—	36,408
Other	—	49,396	49,288	98,684
Total	$ —	$ 835,804	$ 803,372	$ 1,639,176

	Revenue for the Three Months Ended March 31, 2018 From			
	Non-Refundable Payments			
Under Topic 606	Milestones (unaudited)	Up-front Payments (unaudited)	Research and Development Services (unaudited)	Total (unaudited)
GSK Inhaled	$ 45,058	$ 225,293	$ 168,000	$ 438,351
Gates Foundation	—	—	—	—
Other	—	—	487,619	487,619
Total	$ 45,058	$ 225,293	$ 655,619	$ 925,970

Deferred Revenue

The Company recognized $835,804 of revenue from non-refundable payments under ASC 605 during the three months ended March 31, 2017, and $270,351 of revenue during the three months ended March 31, 2018 under Topic 606, which was included in deferred revenue balances at the beginning of these respective periods.

Transaction Price Allocated to the Remaining Performance Obligations

In the first quarter of 2018, the Company was made aware of delays and reduced requirements and budget for Liquidia support for its GSK and G&W Laboratories collaborators and revised its estimate of the remaining estimated period of the performance obligations. As a result, approximately $3 million of deferred

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

(unaudited)

6. Revenue From Contracts With Customers (Continued)

revenue previously considered current was reclassified to long-term deferred revenue as it was not expected to be recognized within 12 months. As of March 31, 2018, approximately $9,015,338 of revenue is expected to be recognized from remaining performance obligations for non-refundable payments. The Company expects to recognize revenue on approximately 15%, 53% and 16% of these remaining performance obligations in 2019, 2020 and 2021 respectively, with the balance recognized thereafter. Revenue from remaining performance obligations for research and development services as of March 31, 2018 was not material.

Deferred Sublicense Payments

Sublicense payments to UNC are considered direct and incremental fulfillment costs of the Company's research, development and licensing agreements as the PRINT technology resources used by the Company are continually enhanced by UNC. These costs are deferred and then amortized over the same estimated period of benefit as the period of the underlying revenue recognition until Technology Transfer occurs. Amortization expense of $79,940 and $27,035 is included in Cost of Sales in the accompanying Statements of Operations and Comprehensive Loss for the three months ended March 31, 2017 and 2018, under ASC 605 and Topic 606, respectively. As of December 31, 2017, the balances of these unamortized payments under ASC 605 included in current and long-term prepaid expenses and other assets was $319,758 and $552,730, respectively. As of March 31, 2018, the balances of these unamortized payments included in current and long-term prepaid expenses and other assets was $3,501 and $898,033, respectively.

7. Property, Plant and Equipment

Property, plant and equipment consisted of the following:

	December 31, 2017	March 31, 2018 (unaudited)
Lab and build-to-suit equipment	$ 3,847,546	$ 5,571,149
Grant equipment	1,143,701	1,143,701
Office equipment	123,655	123,655
Furniture and fixtures	205,051	205,051
Computer equipment	677,569	693,193
Leasehold improvements	7,218,687	8,493,983
Construction-in-progress	2,830,407	312,235
Total property, plant and equipment	16,046,616	16,542,967
Accumulated depreciation	(7,803,604)	(8,128,458)
Property, plant and equipment, net	$ 8,243,012	$ 8,414,509

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

(unaudited)

7. Property, Plant and Equipment (Continued)

The Company recorded depreciation expense of $223,066 and $324,854, respectively, for the three months ended March 31, 2017 and 2018. Maintenance and repairs are expensed as incurred and were $91,813 and $68,436, respectively, for the three months ended March 31, 2017 and 2018.

In December 2016, the Company executed an agreement with a commercial manufacturer to build a PRINT Particle Fabrication Line for the production of cGMP particles for Pharmaceutical Products. The ultimate cost was approximately $1.6 million. The Company financed this transaction with a 3rd party vendor, CSC Leasing Company ("CSC"). CSC made payments to the manufacturer per the payment schedule in the agreement as the asset was fabricated. CSC charged the Company a monthly lease rate on the scheduled payments made to the manufacturer as interim financing costs until the asset was completed and placed in service. Upon completion of fabrication, the lease commenced on March 1, 2018.

In accordance with ASC 840, *Leases*, for build-to-suit arrangements where the Company is involved in the fabrication of an asset prior to the commencement of the ultimate financing or takes some level of construction risk, the Company is considered the accounting owner of the assets during the fabrication period. Accordingly, during the fabrication phase, the Company recorded a Construction-in-progress asset within Property, plant and equipment and a corresponding deferred financing obligation liability for contributions by CSC toward fabrication. Upon completion of the fabrication in March 2018, since the Company maintained substantially all of the risk and rewards of ownership of the asset, the Company recorded the transaction as a financing, continuing to record the asset and reclassifying the deferred financing obligation to debt. As of December 31, 2017, $1,341,810 was recorded in construction-in-progress with an equal deferred financing obligation. As of March 31, 2018, $1,614,466 was recorded as a build-to-suit asset and $1,320,504 was recorded as long-term debt (see Note 10).

8. Related-Party Transactions

Envisia

For shared services provided by Liquidia to Envisia, Liquidia recorded $31,135 and $0, respectively, for sharing of patent costs as a reduction of Research and Development Expenses in the accompanying Statements of Operations and Comprehensive Loss for the three months ended March 31, 2017 and 2018.

9. Commitments and Contingencies

Operating Leases

The Company conducts its operations from leased facilities in Morrisville, North Carolina, the leases for which expire in 2022. The leases are for general office, laboratory, research and development and light manufacturing space. The lease agreements require the Company to pay property taxes, insurance, common area expenses and maintenance costs.

In November 2014 and November 2015, the Company executed the first and second extension period clauses, respectively, resulting in additional months to the lease for the related premises extending until October 2022. As part of these extensions, the Company received tenant allowances of $228,973 and $392,020, respectively, for expansion of laboratory and office space.

In January 2017, the Company signed a second extension to the lease of its primary building for an additional 48 months and expiring October 31, 2026. A tenant allowance of approximately $2,000,000

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

(unaudited)

9. Commitments and Contingencies (Continued)

was also made available for use to help fund the expansion and build out of the primary building. This allowance was fully utilized as of March 31, 2018.

These allowance amounts were recorded as a long-term deferred rent liability and amortized as a reduction in rent expense over the remaining term of the lease. The balance of all unamortized deferred rent and allowances totaled $2,881,180 and $2,829,715 as of December 31, 2017 and March 31, 2018, respectively.

The Company also leases copier equipment under an operating lease, which expires in 2019.

Capital Leases

The Company leases specialized lab equipment under leases classified as capital leases. The related capitalized assets are amortized on a straight-line basis over the estimated useful life of the asset. The interest rates related to these lease obligations range from 0.2% to 12.2%.

Other

In March 2012, the Company entered into an agreement, as amended, with Chasm Technologies, Inc. for manufacturing consulting services related to the Company's manufacturing capabilities during the term of the agreement. As future contingent consideration under the agreement, the Company agreed to pay $400,000 related to the timing of the Company's first Phase 3 clinical trial which commenced in December 2017. The consideration of $400,000 is comprised of initial consideration of $20,000 paid in 2017, $80,000 to be paid upon first dosing of the first patient in the Phase 3 clinical trial, and $300,000 due no later than December 31, 2018. In addition, the Company also agreed to pay future contingent royalties on net sales totaling no more than $1,500,000. As of December 31, 2017 and March 31, 2018, $380,000 and $300,000, respectively, was accrued and is included in Accrued Expenses in the accompanying Balance Sheets.

In June 2017, the Company was served with a lawsuit filed by Allergan, Inc., in the United States District Court for the Central District of California, naming Liquidia and Envisia as defendants. The lawsuit alleged that Envisia's development efforts of one of its product candidates misused Allergan confidential information. The Company's involvement results from its possibly related activities that occurred prior to November 8, 2013, the date of formation of Envisia. In October 2017, the Company settled the litigation with Allergan, Inc., with no financial payments due from the Company or other consideration that materially affects the operation of the Company. There was no accrual for this in the Balance Sheets as of December 31, 2017 and March 31, 2018.

In December 2017, GSK Inhaled made the Company aware of its modified plans under the GSK Inhaled Collaboration and Option Agreement, and the reduced requirement and budget for Liquidia support, commensurate with its research and development plans related to PRINT effective March 31, 2018. As a result, in December 2017, the Company committed to a plan to reduce its workforce which was communicated to the workforce and completed the plan in January 2018. The total employee severance expense resulting from this plan is $404,407, which was expensed in Research and Development Expense in the accompanying Statements of Operations and Comprehensive Loss for the three months ended March 31, 2018. No further employee severance expense is planned related to this matter.

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

(unaudited)

10. Long-Term Debt

Long-term debt consisted of the following as of:

	Maturity Date	December 31, 2017	March 31, 2018 (unaudited)
Pacific Western Bank Tranche I note	December 8, 2019	$ 2,488,572	$ 2,390,769
Pacific Western Bank Tranche II note	October 10, 2020	2,820,382	2,738,319
Pacific Western Bank Tranche III note	October 10, 2020	3,760,509	3,651,093
UNC promissory note	June 30, 2018	2,257,684	2,257,683
Convertible notes, net of discounts	December 31, 2018	9,837,984	—
CSC build-to-suit equipment financing, net of discount	February 28, 2021	—	1,320,504
Less current portion		(15,608,349)	(5,453,555)
Long-term debt, less current portion		$ 5,556,782	$ 6,904,813

Pacific Western Bank

In January 2016, the Company entered into a Loan and Security Agreement ("LSA") with Pacific Western Bank ("Pacific Western"). The LSA provides that the Company may borrow up to $3.0 million in a term loan ("Term Loan") to supplement working capital and finance facility expansion and capital equipment purchases. The Term Loan is collateralized by a lien on all assets of the Company that are not otherwise encumbered, including a negative pledge on intellectual property prohibiting its sale without the bank's consent. The Company is also obligated to comply with various other customary covenants, including, among other things, restrictions on its ability to dispose of assets, replace or suffer the departure of the CEO or CFO without delivering 10 days' prior written notification to the bank, suffer a change on the Board of Directors which would result in the failure of at least one partner of either New Enterprise Associates or Canaan Partners or their respective affiliates to serve as a voting member, make acquisitions, be acquired, incur indebtedness, grant liens, make distributions to its stockholders, make investments, enter into certain transactions with affiliates or pay down subordinated debt, subject to specified exceptions. Amounts borrowed under the Term Loan may be repaid at any time without penalty or premium. The Term Loan was interest-only through July 6, 2017, followed by an amortization period of 30 months of equal monthly payments of principal plus interest, beginning on August 6, 2017 and continuing on the same day of each month thereafter until paid in full. Any amounts borrowed under the Term Loan bore interest at 3.75% during the initial 18-month interest-only period. Following the interest-only period, the interest rate increased to 5.00%, which is fixed for the duration of the loan. At closing, the Company was granted availability of the full $3.0 million, later designated as Tranche I of the Term Loan, with proceed disbursements in the minimum principal amount of $250,000 per draw. The Tranche I loan fully matures and expires when the final payment is made on January 6, 2020.

In October 2016, the Company amended the Term Loan ("Second Amendment") to (1) increase the initial loan amount to $10.0 million by providing a second Term Loan of $3.0 million ("Tranche II") and a third

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

(unaudited)

10. Long-Term Debt (Continued)

Term Loan of $4.0 million ("Tranche III"); and (2) amend a section of the LSA regarding incurred indebtedness. The additional term loans are both subject to the same terms and conditions as the original Term Loan under the LSA. With the Second Amendment, new covenants were enacted requiring the Company to (1) receive proceeds from a sale or issuance of equity by December 31, 2016, which was achieved; (2) file a new clinical trial authorization by December 31, 2016, which was achieved; and (3) agree to set future covenants in future amendments after achievement of the aforementioned milestones. Pursuant to the Second Amendment, Tranche II and Tranche III both bear a fixed rate of interest of 3.75% until October 12, 2017, and 5.0% per annum beginning October 13, 2017 and thereafter, followed by an amortization period of 36 months of equal monthly payments of principal plus interest, beginning on November 12, 2017.

In early 2017, the Company breached a covenant in the LSA with Pacific Western Bank by failing to set mutually agreeable financial or milestone covenants on or before January 30, 2017. On March 30, 2017, pursuant to a Fourth Amendment to the LSA entered into between the Company and Pacific Western, Pacific Western waived the breach of this covenant and the covenant remains in effect.

In October 2017, the Company breached a covenant in its LSA with Pacific Western by failing to maintain minimum levels of cash. On November 30, 2017, pursuant to the Eighth Amendment to the Loan and Security Agreement, Pacific Western waived the breach of this covenant and amended the LSA to require the Company to maintain a cash balance of at least $2.5 million monitored daily, from November 30, 2017 until the Company receives at least $12.0 million from the issuance of equity instruments by December 31, 2017. The Company was in breach of this covenant as of December 31, 2017. In February 2018, Pacific Western waived the breach of this covenant as a result of the Company receiving equity financing in excess of the requirement.

On March 29, 2018, the Company and Pacific Western executed the Ninth Amendment to the LSA (the "Ninth Amendment"). With the Ninth Amendment, new covenants were enacted requiring the Company to (1) at all times maintain a balance of cash at Pacific Western of at least $8.0 million, an increase of $5.5 million from its prior cash balance covenant, and (2) not observe any materially adverse data from its LIQ861 Phase 3 study on or before December 31, 2018. Pursuant to this Ninth Amendment, the interest-only period for the Tranche I loan was amended to include the period from January 7, 2018 to July 6, 2018, and the interest-only period for the Tranche II and Tranche III loans was amended to include the period from January 13, 2018 to July 12, 2018. Prior to executing the amendment, the Company had made principal payments of $0.6 million inside of the defined interest-only period, which were subsequently refunded on the same day.

CSC Build-To-Suit Equipment Financing

See Note 7 for further discussion of the background of the equipment financing ("CSC Financing"). The CSC Financing has a term of three years with equal monthly payments that by themselves imply an interest rate equal to approximately 5.4% per annum. The effective interest rate is 14.9%. The CSC Financing is secured by a lien on the related Build-to-suit equipment and includes a option to purchase the build-to-suit equipment at maturity at an amount equal to the lesser of fair market value or 23% of the initial financed amount.

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

(unaudited)

10. Long-Term Debt (Continued)

UNC Promissory Note

In September 2012, the Company issued an unsecured promissory note with principal amount of $0.6 million as a sublicense fee to UNC, with principal and interest due in full on September 1, 2016, bearing an interest rate equal to the one-year LIBOR plus 2%, compounding annually. In June 2016, the Company (as licensee) negotiated modifications to its license agreement with UNC in exchange for an increase of $1.5 million to the note payable and extension of the maturity to December 31, 2017. As the Company had previously recorded a contingent liability of $1.5 million related to this license, the increase to the note payable was recorded as a reduction to the accrued expense balance at this time. In addition, the initial note of $0.6 million plus accrued interest were extended under the same terms. The combined note payable interest rate was increased by 1%. The balance of the promissory note at December 31, 2017 and March 31, 2018 was $2,257,683. In December 2017, the Company executed an amendment to the UNC Letter Agreement that extends the maturity date of the promissory note from December 31, 2017 to June 30, 2018. All other terms and conditions of the Letter Agreement continue in force through the new maturity date.

Convertible Notes

In January and February 2017, the Company issued an aggregate of $11.8 million in principal of convertible promissory notes (the "January and February Notes"). The January and February Notes are accompanied by warrants to purchase of up to 25% of the aggregate principal amounts of the notes, equal to 3,698,128 shares of Series C-1. The January and February Notes were scheduled to mature on December 31, 2018, as amended, and bore interest at eight percent (8%) per annum. Interest was earned daily and computed on the actual number of days elapsed until all the amounts under the notes had been paid in full. All unpaid principal and all accrued, but unpaid interest of each investor's note was due and payable on demand at the request of the investor at any time after December 31, 2018. In addition, upon the consummation of an asset sale, acquisition, or IPO, as defined, the investors may have elected to accelerate the repayment of the note or convert into Class A or Series C-1 based on the following scenarios:

Singapore IPO

Upon the consummation of an IPO of the Company's capital stock registered on the Singapore Exchange Securities Trading Limited (a "Singapore IPO") after August 1, 2017, the holders had the right to elect to (i) receive payment from the Company equal to the outstanding principal plus all accrued but unpaid interest or (ii) convert the outstanding principal and accrued but unpaid interest into such shares of the Company's capital stock at a price per share that was equal to 70% of the price per share paid by the purchasers of such shares in such IPO.

Domestic IPO

Upon the consummation of an IPO of the Company's Common Stock registered under the Securities Act of 1933, after which such Common Stock is listed for trading on a United States national securities exchange (a "Domestic IPO"), the holders had the right to elect to (i) receive payment from the Company equal to the outstanding principal plus accrued but unpaid interest or (ii) convert all outstanding principal and accrued but unpaid interest into shares of the Company's Common Stock at a price per share that was equal to 75% of the price per share paid by the purchasers of the shares in such IPO.

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

(unaudited)

10. Long-Term Debt (Continued)

Automatic Conversion upon Qualified Financing

The principal and accrued but unpaid interest would have automatically converted into shares of Preferred Stock issued in a Qualified Financing, as defined. The number of shares of Preferred Stock issued would have been equal to the quotient of (i) the principal amount plus accrued but unpaid interest and (ii) 75% of the lowest price per share paid by investors participating in the Qualified Financing. If a Qualified Financing had not occurred prior to December 31, 2017, the holders of the notes had the right to elect to convert the outstanding principal plus accrued but unpaid interest into shares of the Company's Series C-1 at $0.59808 per share. The holders did not exercise this right.

Conversion upon Non-Qualified Financing

The holders may elect to convert the outstanding principal and accrued but unpaid interest on the notes into any shares of the Company's capital stock that are issued in any financing transaction other than a Qualified Financing, a Domestic IPO or a Singapore IPO (a "Non-Qualified Financing"). The number of shares issued would have been equal to the quotient of (i) the sum of the principal amount plus accrued but unpaid interest and (ii) 75% of the lowest price per share paid by investors participating in the Non-Qualified Financing.

Strategic Transaction

Upon the consummation of an asset sale of all or substantially all of the Company's assets or an acquisition, merger or change in control (a "Strategic Transaction"), the holders of the notes had the right to elect to (i) receive a payment from the Company equal to the sum of (1) 200% of the then outstanding principal and (2) accrued but unpaid interest or (ii) convert the outstanding principal and accrued but unpaid interest into shares of the Company's Series C-1 at $0.59808 per share.

Additionally, upon the occurrence of certain Events of Default, as defined in the notes, each investor may have elected to accelerate the repayment of all unpaid principal and accrued interest under each note and the notes provide for automatic redemption upon the occurrence of certain bankruptcy related Events of Default, as defined in the notes.

In July 2017, the Company entered into a series of unsecured convertible note agreements of $10.4 million in the aggregate (the "July Notes"). The July Notes bore interest at a rate of 8% per annum with a scheduled maturity date of December 31, 2018. In conjunction with this financing, the Company also entered into a commitment with an advisor in the form of a convertible note amounting to $0.4 million with terms similar to the related transaction. The July Notes were not accompanied by warrants. Principal plus accrued interest were convertible into either preferred or common stock at the time of a Qualified Financing at a discount to the share price, depending on the financing similar to the January and February Notes. Conversion discounts on these convertible notes were largely similar to the January and February Notes except that the discount for a Singapore and Domestic IPO were both 50%.

In November 2017, the Company issued a series of unsecured subordinated convertible notes with an aggregate principal amount of $5.2 million to new and existing investors (the "November Notes"). The November Notes bore interest at a rate of 8% per annum with a scheduled maturity date of December 31, 2018. Principal plus accrued interest were convertible into either preferred or common stock at the time of a qualified financing, as defined, at a discount to the share price, depending on the financing. In conjunction with this financing, the Company also incurred fees of $0.4 million. The November Notes were not accompanied by warrants. Conversion discounts on these convertible notes were largely similar to the

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

(unaudited)

10. Long-Term Debt (Continued)

July Notes except that there was no discount upon mandatory conversion into a private financing round. In addition, at maturity, the November Notes (principal plus accrued but unpaid interest) would have converted into shares of the Company's Series C-1 at $0.72877 per share.

Accounting for Convertible Notes

The Company accounts for debt as liabilities measured at amortized cost and amortizes the resulting debt discount from allocation of proceeds to interest expense using the straight-line method over the expected term of the notes pursuant to ASC 835, *Interest* (ASC 835).

In connection with the issuance of the convertible notes and warrants, the Company recorded discounts equal to the full amount of each series of notes based on an allocation of proceeds to the warrants, an allocation to bifurcated derivatives which consist of a contingent put option upon a change of control or acceleration upon event of default and a contingent call option upon a change of control included in the notes, and a beneficial conversion feature, before issuance costs, based on the difference between the fair value of the underlying common stock at the commitment date of each note transaction and the effective conversion price of the notes, as limited by the proceeds allocated to the notes. Since the initial carrying value of all three series of convertible notes was $0, the combined debt issuance costs of $1,397,624 were charged to Interest Expense. See Note 2 for discussion of the Company's policies for accounting for convertible instruments with detachable liability-classified warrants.

In February 2018, the Company received proceeds of $25.6 million in exchange for the corresponding sale of Series D Preferred Stock at a price per share of $0.59808. In addition, all outstanding convertible notes, plus accrued interest, totaling $28.9 million, were converted into Series D preferred stock at the same price per share. The unamortized balances of the discounts on convertible notes of $17.6 million were then amortized to interest expense. Therefore, the balances of these notes at March 31, 2018 was $0. No gain or loss was recorded upon the conversion of the convertible notes.

Accounting for the Warrant Liabilities

The Company's liability-classified warrants were recorded as liabilities at their estimated fair value at the date of issuance, with the subsequent changes in estimated fair value recorded in derivative and warrant fair value adjustments in the Company's Statements of Operations and Comprehensive Loss. The warrants, with a fair value of $4,474,122 at inception, were initially recorded as warrant liabilities on the Balance Sheets with a corresponding discount to the notes. The change in the estimated fair value of the warrant liabilities resulted in a fair value adjustment and is included in derivative and warrant fair value

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

(unaudited)

10. Long-Term Debt (Continued)

adjustments in the Statements of Operations and Comprehensive Loss. Changes in the values of the warrant liabilities for the three months ended March 31, 2017 and 2018 are summarized below:

	Three Months Ended March 31,	
	2017	2018
	(unaudited)	
Fair value, beginning of period	$ —	$ 2,462,859
Issuance of warrants	4,474,122	—
Change in fair value	616,324	753,887
Fair value, end of period	$ 5,090,446	$ 3,216,746

Assumptions Used in Determining Fair Value of Liability Classified Warrants

To estimate the fair value of the warrants, the Company used a combination of the Current Value Method, Option Pricing Method ("OPM"), and Black-Scholes Option Pricing Model, in a Probability-Weighted Expected Return Method ("PWERM") context, or the Hybrid Method ("Hybrid Method"). The Company estimated the fair value of Series C-1 and estimated the fair value of Class A in the Singapore IPO and Domestic IPO scenarios. The Company used a Black-Scholes option pricing model to estimate the fair value of the warrants using the life of the warrants, assuming a Strategic Transaction does not occur, and the fair value of underlying equity values from the first step. The Company probability-weighted each scenario to arrive at an estimated fair value of the warrants.

Depending upon the scenario, warrants could be exercised to purchase either Class A or Series C-1 stock. To value the warrants in each scenario, the Company used either an OPM or the Black-Scholes option pricing model. The hybrid method is a useful alternative to explicitly modeling all PWERM scenarios in situations when the Company has transparency into one or more near-term exits but is unsure about what will occur if the current plans fall through.

Key assumptions in the hybrid method include:

- § OPM-Stay Private, US IPO or Singapore IPO
- § Probability
- § Timing (Each IPO)
- § Enterprise value
- § Type of Security
- § Estimated security value
- § Methodology of valuing warrant OPM

Accounting for the Derivative Liabilities

Management determined that the various conversion features discussed above represent, in substance, a put option (redemption feature) designed to provide the investor with a fixed monetary amount, settled in shares. Management determined that this put option and the Contingent Interest should be separated from

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

(unaudited)

10. Long-Term Debt (Continued)

the notes and accounted for as a compound derivative liability primarily because the notes were issued at a substantial discount because the warrants, put option, and the Contingent Interest meet the net settlement criterion. The compound derivative liabilities were initially recorded as derivative liabilities on the Balance Sheets and a corresponding discount to the notes. As the estimated fair value of the derivative liabilities was $0 at December 31, 2017 and did not change in value as of March 31, 2018, no fair value adjustment was recorded for the three months ended March 31, 2018. The change in the estimated fair value of the derivative liabilities for the three months ended March 31, 2017 resulted in a fair value adjustment and is included in derivative and warrant fair value adjustments in the Statements of Operations and Comprehensive Loss.

Changes in the values of the derivative liabilities for the three months ended March 31, 2017 and 2018 are summarized below:

	Three Months Ended March 31,	
	2017	2018
	(unaudited)	
Fair value, beginning of period	$ —	$ —
Issuance of derivatives	4,365,880	—
Change in fair value	206,727	—
Fair value, end of period	$ 4,572,607	$ —

Assumptions Used in Determining Fair Value of Compound Bifurcated Derivative

The Company assessed the accounting for the Convertible Notes and determined that there were several embedded derivatives that required bifurcation from the host debt instrument at fair value in accordance with ASC 815, *Derivatives and Hedging.* These embedded derivatives are more like equity instruments, and thus not "clearly and closely related" to the economic characteristics of the Convertible Notes. Further, they were determined not to meet the definition of being indexed to the Company's own stock due to the variable number of shares to be converted under different scenarios. When a host instrument has multiple embedded derivative features that require bifurcation, ASC 815 requires that they be bundled as one and accounted for separately from the Convertible Notes at fair value.

To determine the fair value of such derivatives, the Company compared i) the expected payout from the different conversion scenarios upon their expected date of occurrence, discounted to present value at a risk-free rate, to 2) the fair value of the Convertible Notes if it were paid in cash or converted into Series C-1 on December 31, 2017. The difference between these two results represents the fair value of the bundled derivative.

First, the Company estimated the expected payout under the Singapore IPO, Domestic IPO and Qualified Financing scenarios. The principal and accrued interest on the Convertible Notes were calculated through the expected payout date, and divided by the stated conversion price discount to determine the amount that

Liquidia Technologies, Inc.

Notes to Financial Statements (Continued)

(unaudited)

10. Long-Term Debt (Continued)

would be paid upon occurrence of the event. The payoff from each scenario was then discounted to present value at the risk-free rate and the Company probability-weighted each scenario to arrive at the expected payout value for purposes of the valuation. Next, it was assumed that if conversion under the IPO or Financing scenarios did not occur by December 31, 2017, it would be most advantageous for the investors to convert the Convertible Notes into Series C-1 or request payment of principal and interest in cash. The value of the Convertible Note under these scenarios was modeled using the OPM. The difference between the payout value under the various conversion scenarios and the value of the Convertible Notes under the OPM, assuming the Convertible Notes are not converted or paid until December 31, 2017, results in the fair value of the bundled derivative.

Accounting for the Beneficial Conversion Feature

The Company did not separate from the notes the conversion feature in which the holders may convert the principal and interest on the notes into shares of the Company's Series C-1 Preferred Stock at $0.59808 per share if a Qualified Financing had not occurred prior to December 31, 2017. The Company concluded that this conversion feature is a beneficial conversion feature that should be recognized separately and measured initially at its intrinsic value. Since the intrinsic value of this beneficial conversion feature is greater than the proceeds allocated to the notes, the amount of the discount assigned to the beneficial conversion feature is limited to the amount of the proceeds allocated to the notes. The Company recorded the beneficial conversion feature of $2,956,166, $4,935,246, and $5,150,000 as additional paid in capital and a corresponding discount to the notes on the Balance Sheet for the January and February Notes, July Notes and November Notes, respectively.

11. Subsequent Events

Subsequent events have been evaluated for disclosure through May 10, 2018, the date the Company's financial statements were available to be issued.

In April 2018, the Company and G&W mutually agreed to terminate the G&W Agreement.

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Shares

Liquidia Technologies, Inc.

Common Stock

PRELIMINARY PROSPECTUS

Joint Book-Running Managers

Jefferies
Cowen

Co-Managers

Needham & Company
Wedbush PacGrow

, 2018

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 13. ***Other Expenses of Issuance and Distribution***

The following table indicates the expenses to be incurred in connection with the offering described in this registration statement, other than underwriting discounts and commissions, all of which will be paid by us. All amounts are estimated except the U.S. Securities and Exchange Commission, or the SEC, registration fee, the FINRA filing fee and Nasdaq listing fee.

	Amount
SEC registration fee	$ *
FINRA filing fee	*
Nasdaq listing fee	*
Accountants' fees and expenses	*
Legal fees and expenses	*
Blue Sky fees and expenses	*
Transfer agent's fees and expenses	*
Printing and engraving expenses	*
Miscellaneous	*
Total expenses	$ *

* To be filed by amendment.

Item 14. ***Indemnification of Directors and Officers.***

Section 102 of the Delaware General Corporation Law, or the DGCL, permits a corporation to eliminate the personal liability of directors of a corporation to the corporation or its stockholders for monetary damages for a breach of fiduciary duty as a director, except where the director breached his duty of loyalty, failed to act in good faith, engaged in intentional misconduct or knowingly violated a law, authorized the payment of a dividend or approved a stock repurchase in violation of Delaware corporate law or obtained an improper personal benefit. Our amended and restated certificate of incorporation will provide that no director of the Registrant shall be personally liable to it or its stockholders for monetary damages for any breach of fiduciary duty as a director, notwithstanding any provision of law imposing such liability, except to the extent that the DGCL prohibits the elimination or limitation of liability of directors for breaches of fiduciary duty.

Section 145 of the DGCL provides that a corporation has the power to indemnify a director, officer, employee or agent of the corporation, or a person serving at the request of the corporation for another corporation, partnership, joint venture, trust or other enterprise in related capacities against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by the person in connection with an action, suit or proceeding to which he was or is a party or is threatened to be made a party to any threatened, ending or completed action, suit or proceeding by reason of such position, if such person acted in good faith and in a manner he reasonably believed to be in or not opposed to the best interests of the corporation, and, in any criminal action or proceeding, had no reasonable cause to believe his conduct was unlawful, except that, in the case of actions brought by or in the right of the corporation, no indemnification shall be made with respect to any claim, issue or matter as to which such person shall have been adjudged to be liable to the corporation unless and only to the extent that the Court of Chancery or other adjudicating court determines that, despite the adjudication of liability

but in view of all of the circumstances of the case, such person is fairly and reasonably entitled to indemnity for such expenses which the Court of Chancery or such other court shall deem proper.

Upon completion of this offering, our amended and restated certificate of incorporation and amended and restated bylaws will provide indemnification for our directors and officers to the fullest extent permitted by the DGCL. We will indemnify each person who was or is a party or threatened to be made a party to any threatened, pending or completed action, suit or proceeding (other than an action by or in the right of us) by reason of the fact that he or she is or was, or has agreed to become, a director or officer, or is or was serving, or has agreed to serve, at our request as a director, officer, partner, employee or trustee of, or in a similar capacity with, another corporation, partnership, joint venture, trust or other enterprise (all such persons being referred to as an Indemnitee), or by reason of any action alleged to have been taken or omitted in such capacity, against all expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred in connection with such action, suit or proceeding and any appeal therefrom, if such Indemnitee acted in good faith and in a manner he or she reasonably believed to be in, or not opposed to, our best interests, and, with respect to any criminal action or proceeding, he or she had no reasonable cause to believe his or her conduct was unlawful. Our amended and restated certificate of incorporation and amended and restated bylaws will provide that we will indemnify any Indemnitee who was or is a party to an action or suit by or in the right of us to procure a judgment in our favor by reason of the fact that the Indemnitee is or was, or has agreed to become, a director or officer, or is or was serving, or has agreed to serve, at our request as a director, officer, partner, employee or trustee of, or in a similar capacity with, another corporation, partnership, joint venture, trust or other enterprise, or by reason of any action alleged to have been taken or omitted in such capacity, against all expenses (including attorneys' fees) and, to the extent permitted by law, amounts paid in settlement actually and reasonably incurred in connection with such action, suit or proceeding, and any appeal therefrom, if the Indemnitee acted in good faith and in a manner he or she reasonably believed to be in, or not opposed to, our best interests, except that no indemnification shall be made with respect to any claim, issue or matter as to which such person shall have been adjudged to be liable to us, unless a court determines that, despite such adjudication but in view of all of the circumstances, he or she is entitled to indemnification of such expenses. Notwithstanding the foregoing, to the extent that any Indemnitee has been successful, on the merits or otherwise, he or she will be indemnified by us against all expenses (including attorneys' fees) actually and reasonably incurred in connection therewith. Expenses must be advanced to an Indemnitee under certain circumstances.

Prior to the completion of this offering, we intend to enter into separate indemnification agreements with each of our directors and certain officers. Each indemnification agreement will provide, among other things, for indemnification to the fullest extent permitted by law and our amended and restated certificate of incorporation and amended and restated bylaws against any and all expenses, judgments, fines, penalties and amounts paid in settlement of any claim. The indemnification agreements will provide for the advancement or payment of all expenses to the indemnitee and for the reimbursement to us if it is found that such indemnitee is not entitled to such indemnification under applicable law and our amended and restated certificate of incorporation and amended and restated bylaws.

We maintain a general liability insurance policy that covers certain liabilities of directors and officers of our corporation arising out of claims based on acts or omissions in their capacities as directors or officers.

In any underwriting agreement we enter into in connection with the sale of common stock being registered hereby, the underwriters will agree to indemnify, under certain conditions, us, our directors, our officers and persons who control us within the meaning of the Securities Act of 1933, as amended, or the Securities Act, against certain liabilities.

Item 15. ***Recent Sales of Unregistered Securities.***

The following sets forth information as to all securities we have sold since April 30, 2015, which were not registered under the Securities Act.

Series D Preferred Stock

On February 2, 2018, we issued and sold an aggregate of 82,560,006 shares of Series D preferred stock at a price per share equal to $0.59808. Of the 27 investors which participated in the initial closing of this offering, six investors purchased an aggregate of 34,276,349 shares of Series D preferred stock for an aggregate of $20.5 million and 26 holders of outstanding convertible notes in the aggregate amount of $28.9 million converted into an aggregate of 48,283,657 shares of Series D preferred stock.

Pursuant to the terms of the Series D Preferred Stock Purchase Agreement, on February 15, 2018 we sold 8,360,085 shares of Series D preferred stock to an accredited investor for a total purchase price of $5.0 million.

Additionally, pursuant to the terms of the Series D Preferred Stock Purchase Agreement, we offered our existing stockholders who are accredited investors the opportunity to purchase their pro rata portion of the Series D preferred stock in a rights offering. On February 28, 2018, we sold an aggregate of 227,391 shares of Series D preferred stock for an aggregate purchase price of $135,998.

We claimed an exemption from registration under the Securities Act for the issuance and sale of the Series D preferred stock under Section 4(a)(2) of the Securities Act in that such sales and issuances do not involve a public offering.

Unsecured Subordinated Convertible Promissory Notes

In a series of closings from January 9, 2017 to November 29, 2017, we issued and sold an aggregate of approximately $27.4 million underlying a total of 27 unsecured subordinated convertible promissory notes, each accruing simple interest at a rate of 8% per annum, or the Notes. See "Description of Capital Stock — Common Stock" for more information.

We claimed an exemption from registration under the Securities Act for the issuance and sale of the Notes under Section 4(a)(2) of the Securities Act in that such sales and issuances did not involve a public offering.

Warrants

In connection with the closings of the Notes from January 9, 2017 to February 17, 2017, we issued and sold 17 warrants to purchase an aggregate of 3,698,128 shares of our Series C-1 preferred stock at an exercise price of $0.001 per share which are convertible into an aggregate of 4,394,914 shares of common stock. See "Description of Capital Stock — Warrants" for more information.

We claimed an exemption from registration under the Securities Act for the issuance and sale of such Warrants under Section 4(a)(2) of the Securities Act in that such sales and issuances did not involve a public offering.

Options

On May 13, 2015, we granted incentive stock options to five employees to purchase an aggregate of 58,000 shares of common stock under our 2004 Plan, with an exercise price equal to $0.28 per share.

On May 21, 2015, we granted incentive stock options to 17 employees to purchase an aggregate of 3,374,000 shares of common stock under our 2004 Plan, with an exercise price equal to $0.28 per share.

145,417 of such option shares have subsequently been exercised for common stock and 197,083 option shares were terminated without being exercised.

On August 27, 2015, we granted incentive stock options to nine employees to purchase an aggregate of 960,362 shares of common stock under our 2004 Plan, with an exercise price equal to $0.28 per share. 239,766 of such option shares have subsequently been exercised for common stock.

On November 3, 2015, we granted incentive stock options to nine employees to purchase an aggregate of 713,161 shares of common stock under our 2004 Plan, with an exercise price equal to $0.28 per share. 30,000 of such option shares have subsequently been exercised for common stock. 168,400 of such option shares were terminated without being exercised.

On February 10, 2016, we granted incentive stock options to six employees to purchase an aggregate of 662,756 shares of common stock under our 2004 Plan, with an exercise price equal to $0.35 per share. 17,617 of such option shares were terminated without being exercised.

On August 10, 2016, we granted incentive stock options to eight employees to purchase an aggregate of 465,617 shares of common stock under the Liquidia Technologies, Inc. 2016 Equity Incentive Plan, as amended, or the 2016 Plan, with an exercise price equal to $0.35 per share.

On August 30, 2016, we granted incentive stock options to three employees to purchase an aggregate of 235,000 shares of common stock under the 2016 Plan, with an exercise price equal to $0.35 per share.

On December 7, 2016, we granted a non-statutory stock option to Arthur Kirsch, a director, to purchase 150,000 shares of common stock under the 2016 Plan, with an exercise price equal to $1.21 per share.

On March 15, 2017, we granted incentive stock options to seven employees to purchase an aggregate of 219,000 shares of common stock under the 2016 Plan, with an exercise price equal to $1.21 per share. 9,000 of such option shares were terminated without being exercised.

On May 31, 2017, we granted an incentive stock option to an employee to purchase 18,000 shares of common stock under the 2016 Plan, with an exercise price equal to $1.21 per share.

On March 7, 2018, we granted incentive stock options to 64 employees to purchase an aggregate of 11,835,767 shares of common stock under the 2016 Plan, with an exercise price equal to $0.55 per share. Included in these 64 grants were grants to: (i) Neal Fowler, our Chief Executive Officer, for 3,900,000 shares; (ii) Kevin Gordon, our President and Chief Financial Officer, for 2,146,767 shares; (iii) Robert Lippe, our Chief Operations Officer, for 735,000 shares; (iv) Dr. Robert Roscigno, our Senior Vice President, Product Development, for 600,000 shares; (v) Dr. Benjamin Maynor, our Senior Vice President, Research and Development, for 700,000 shares; (vi) Jason Adair, our Vice President, Business Development and Strategy, for 350,000 shares; and (vii) Timothy Albury, our Senior Vice President, Chief Accounting Officer, for 514,000 shares.

On March 7, 2018, we also granted non-statutory stock options to four directors to purchase an aggregate of 1,810,000 shares of common stock under the 2016 Plan, with an exercise price equal to $0.55 per share. These four grants comprised grants to: (i) Arthur Kirsch, for 135,000 shares; (ii) Dr. Seth Rudnick, for 930,000 shares; (iii) Dr. Ralph Snyderman, for 460,000 shares; and (iv) Raman Singh, for 285,000 shares.

On March 7, 2018, in connection with his employment agreement, we granted Mr. Gordon 2,146,767 restricted stock units, equal to one percent of our issued and outstanding capital stock on a fully-diluted basis on the date of grant. Further, pursuant to his employment agreement, on the date of execution of the underwriting agreement Mr. Gordon is also entitled to (i) a stock option award under the Liquidia Technologies, Inc. 2018 Long-Term Incentive Plan, or the 2018 Plan, to purchase shares of our common stock equal to 1% of our capital stock on a fully-diluted basis on the date of grant (shares assuming

we sell shares in this offering) with an exercise price per share equal to the initial public offering price, and (ii) a restricted stock unit award equal to 1% of our capital stock on a fully-diluted basis on the date of grant (shares assuming we sell shares in this offering).

We claimed exemption from registration under the Securities Act for the sales and issuances of securities in the transactions described above under Section 4(a)(2) of the Securities Act in that such sales and issuances did not involve a public offering or under Rule 701 promulgated under the Securities Act, or Rule 701, in that they were offered and sold either pursuant to written compensatory plans or pursuant to a written contract relating to compensation, as provided by Rule 701.

On the date of execution of the underwriting agreement, in addition to the option to be granted to Mr. Gordon upon the closing of this offering we expect to grant, under the 2018 Plan to certain of our officers and directors, an aggregate of shares of common stock issuable upon the exercise of stock options.

On March 27, 2018, we granted incentive stock options to two employees to purchase an aggregate of 25,000 shares of Common Stock under our 2016 Plan, with an exercise price equal to $0.55 per share.

All of the foregoing securities are deemed restricted securities for purposes of the Securities Act. All certificates representing the issued securities described in this Item 15 included appropriate legends setting forth that the securities had not been registered and the applicable restrictions on transfer.

Item 16. ***Exhibits and Financial Statement Schedules.***

(a) The following exhibits are filed as part of this Registration Statement:

Exhibit Number	Description
1.1*	Form of Underwriting Agreement.
3.1**	Amended and Restated Certificate of Incorporation currently in effect.
3.2**	Certificate of Correction to the Amended and Restated Certificate of Incorporation currently in effect.
3.3*	Form of Amended and Restated Certificate of Incorporation, to be in effect after the consummation of this offering.
3.3**	Bylaws, as amended, currently in effect.
3.4*	Form of Amended and Restated Bylaws, to be in effect after the consummation of this offering.
4.1**	Form of Specimen Common Stock Certificate.
4.2**	2016 Letter Agreement Promissory Note, issued by the Company to The University of North Carolina at Chapel Hill on June 10, 2016, as amended on December 2, 2017.
4.3**	Form of Warrant to Purchase Shares of Series B Preferred Stock, issued by the Company on March 28, 2008.
4.4**	Form of Warrant to Purchase Shares of Series C-1 Preferred Stock, issued by the Company in January 2017 and February 2017.
4.5**	Seventh Amended and Restated Investors' Rights Agreement, dated as of February 2, 2018, by and among the Company, the Investors party thereto and the Common Holders party thereto.
5.1*	Opinion of DLA Piper LLP (US).
10.1**	Liquidia Technologies, Inc. Stock Option Plan (2004), as amended, and forms of award agreements thereunder.

Exhibit Number	Description
10.2**	Liquidia Technologies, Inc. 2016 Equity Incentive Plan, as amended, and forms of award agreements thereunder.
10.3*	Liquidia Technologies, Inc. 2018 Long-Term Incentive Plan, and forms of award agreements thereunder.
10.4	Form of Indemnification Agreement with the Company's executive officers and directors.
10.5**	Loan and Security Agreement, dated as of January 6, 2016, by and between the Company and Pacific Western Bank.
10.6**	Second Amendment to Loan and Security Agreement, dated as of October 12, 2016, by and between the Company and Pacific Western Bank.
10.7**	Third Amendment to Loan and Security Agreement, dated as of December 28, 2016, by and between the Company and Pacific Western Bank.
10.8**	Fourth Amendment to Loan and Security Agreement, dated as of March 30, 2017, by and between the Company and Pacific Western Bank.
10.9**	Fifth Amendment to Loan and Security Agreement, dated as of April 28, 2017, by and between the Company and Pacific Western Bank.
10.10**	Sixth Amendment to Loan and Security Agreement, dated as of June 14, 2017, by and between the Company and Pacific Western Bank.
10.11**	Seventh Amendment to Loan and Security Agreement, dated as of October 27, 2017, by and between the Company and Pacific Western Bank.
10.12**	Eighth Amendment to Loan and Security Agreement, dated as of November 30, 2017, by and between the Company and Pacific Western Bank.
10.13**	Ninth Amendment to Loan and Security Agreement, dated as of March 29, 2018 by and between the Company and Pacific Western Bank.
10.14+	Inhaled Collaboration and Option Agreement, dated as of June 15, 2012, by and between the Company and Glaxo Group Limited.
10.15+	Amendment No. 1 to the Inhaled Collaboration and Option Agreement, dated as of May 13, 2015, by and between the Company and Glaxo Group Limited.
10.16+	Second Amendment to the Inhaled Collaboration and Option Agreement, dated as of November 19, 2015, by and between the Company and Glaxo Group Limited.
10.17+	Amended and Restated License Agreement, dated as of December 15, 2008, as amended, by and between the Company and The University of North Carolina at Chapel Hill.
10.18+	First Amendment to Amended and Restated License Agreement, dated as of June 8, 2009, by and between the Company and The University of North Carolina at Chapel Hill.
10.19**	Sixth Amendment to Amended and Restated License Agreement, dated as of June 10, 2016, by and between the Company and The University of North Carolina at Chapel Hill.
10.20+	Manufacturing Development and Scale-up Agreement, dated as of March 19, 2012, by and between the Company and Chasm Technologies, Inc.
10.21+	1st Amendment to Manufacturing Development and Scale-up Agreement, dated as of May 25, 2017, by and between the Company and Chasm Technologies, Inc.
10.22#**	Amended and Restated Executive Employment Agreement, dated as of January 31, 2018, by and between the Company and Neal Fowler.

Exhibit Number	Description
10.23#**	Executive Employment Agreement, dated as of January 22, 2018, by and between the Company and Kevin Gordon.
10.24#**	Executive Employment Agreement, dated as of April 1, 2017, by and between the Company and Robert Lippe.
10.25#**	Form of Amended and Restated Executive Employment Agreement to be entered into between the Company and Robert Lippe.
10.26#**	Amended and Restated Executive Employment Agreement, effective January 22, 2018, by and between the Company and Timothy Albury.
10.27#**	Form of Amended and Restated Executive Employment Agreement to be entered into between the Company and Timothy Albury.
10.28#**	Liquidia Technologies, Inc. Annual Cash Bonus Plan.
10.29#	Executive Severance and Change in Control Plan.
10.30**	Lease Agreement, dated as of April 14, 2005, by and between the Company and Technology VII-IX, LLC, as amended.
10.31**	Lease Agreement, dated as of June 29, 2007, by and between the Company and GRE Keystone Technologies One LLC, as amended.
23.1*	Consent of PricewaterhouseCoopers LLP, independent Registered Public Accounting Firm.
23.2*	Consent of DLA Piper LLP (US) (included in Exhibit 5.1).
23.3**	Consent of Decision Resources Group.
23.4	Consent of CapVal-American Business Appraisers, LLC.
24.1*	Power of Attorney (included on signature page).

* To be filed by amendment.

** Previously filed.

\+ Application has been made to the Securities and Exchange Commission for confidential treatment of certain portions. Omitted material for which confidential treatment has been requested has been filed separately with the Securities and Exchange Commission.

\# Indicates management contract or compensatory plan.

Item 17. ***Undertakings.***

The undersigned registrant hereby undertakes to provide to the underwriters at the closing specified in the underwriting agreement certificates in such denominations and registered in such names as required by the underwriters to permit prompt delivery to each purchaser.

Insofar as indemnification for liabilities arising under the Securities Act, may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question

whether such indemnification by it is against public policy as expressed in the Securities Act of 1933, as amended, and will be governed by the final adjudication of such issue.

The undersigned registrant hereby undertakes that:

(1) The registrant will provide to the underwriter at the closing as specified in the underwriting agreement certificates in such denominations and registered in such names as required by the underwriter to permit prompt delivery to each purchaser.

(2) For purposes of determining any liability under the Securities Act, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the Registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.

(3) For the purpose of determining any liability under the Securities Act, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the registrant certifies that it has reasonable grounds to believe that it meets all the requirements for filing on Form S-1 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the Town of Morrisville, State of North Carolina, on this day of , 2018.

By: _____

Name: Neal Fowler
Title: *Chief Executive Officer*

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints each of Neal Fowler and Kevin Gordon his true and lawful attorney-in-fact, with full power of substitution and resubstitution for him and in his name, place and stead, in any and all capacities to sign any and all amendments including post-effective amendments to this registration statement (including, without limitation, any additional registration statement filed pursuant to Rule 462 under the Securities Act of 1933), and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, hereby ratifying and confirming all that said attorney-in-fact or his substitute, each acting alone, may lawfully do or cause to be done by virtue thereof.

Pursuant to the requirements of the Securities Act of 1933, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated.

Name	Position	Date
_____ Neal Fowler	Director and Chief Executive Officer (Principal Executive Officer)	, 2018
_____ Kevin Gordon	President and Chief Financial Officer (Principal Financial Officer)	, 2018
_____ Timothy Albury	Senior Vice President, Chief Accounting Officer (Principal Accounting Officer)	, 2018
_____ Seth Rudnick	Chairman of the Board of Directors	, 2018
_____ Stephen Bloch	Director	, 2018

Name	Position	Date
Edward Mathers	Director	, 2018
Isaac Cheng	Director	, 2018
Ralph Snyderman	Director	, 2018
Arthur Kirsch	Director	, 2018
Jason Rushton	Director	, 2018
Raman Singh	Director	, 2018

Exhibit 10.4

INDEMNIFICATION AGREEMENT

This Indemnification Agreement (this "Agreement") is made as of [ ] [ ], 2018, by and between Liquidia Technologies, Inc., a Delaware corporation (the "Corporation"), and [ ] ("Indemnitee"). Capitalized terms used, but not otherwise defined herein, shall have the meanings set forth in Section 1.

RECITALS

A. Highly competent and qualified persons have become more reluctant to serve corporations as directors, officers or in other capacities unless they are provided with adequate protection through insurance coverage or adequate indemnification against risks of claims and actions against them arising out of their service to and activities on behalf of the corporation.

B. The board of directors of the Corporation (the "Board") has determined that, in order to attract and retain competent and qualified individuals, the Corporation will seek to maintain on an ongoing basis, at its sole expense, directors' and officers' liability insurance to protect persons serving the Corporation and its subsidiaries from certain liabilities. However, as a result of changes in the marketplace for insurance it has become increasingly difficult to obtain directors' and officers' liability insurance on terms providing reasonable protection at reasonable cost. The uncertainties relating to directors' and officers' liability insurance have increased the difficulty of attracting and retaining such persons.

C. The Board has determined that the potential inability to attract and retain highly competent and qualified persons to serve the Corporation would be detrimental to the best interests of the Corporation and its stockholders and that the Corporation should act to assure such persons that there will be increased certainty of adequate protection against risks of claims and actions against them arising out of their service to and activities on behalf of the Corporation in the future.

D. The Board has determined that it is reasonable, prudent and necessary for the Corporation to contractually obligate itself to indemnify, and to advance expenses on behalf of, such persons to the fullest extent permitted by applicable law so that they will serve or continue to serve the Corporation free from undue concern that they will not be so indemnified.

E. Indemnitee has agreed to serve the Corporation in an officer and/or director capacity provided that Indemnitee is provided the protections available under this Agreement, the Corporation's Amended and Restated Certificate of Incorporation (as amended, modified, supplemented, restated or amended and restated from time to time, the "Certificate of Incorporation"), the Corporation's Amended and Restated Bylaws (as amended and/or restated from time to time, the "Bylaws") and directors' and officers' liability insurance coverage that is adequate in the present circumstances.

F. This Agreement is a supplement to and in furtherance of any protections provided by the Certificate of Incorporation, the Bylaws and any resolutions adopted pursuant thereto, and shall not be deemed a substitute therefor, nor to diminish or abrogate any rights of Indemnitee thereunder. In addition, Indemnitee will be entitled to indemnification pursuant to the Delaware General Corporation Law.

NOW THEREFORE, in consideration of the foregoing and the covenants, promises and representations set forth herein, and for other good and valuable consideration, including Indemnitee's agreement to serve as a director and/or officer of the Corporation after the date hereof, and intending to be legally bound hereby, the parties hereto agree as follows:

1. Certain Definitions for Purposes of this Agreement. The following terms as used in this Agreement shall have the meanings set forth below.

(a) "Change in Control" means:

(i) merger, consolidation or reorganization approved by the Corporation's stockholders, unless securities representing more than 50 percent of the total and combined voting power of the outstanding voting securities of the successor corporation are immediately thereafter beneficially owned, directly or indirectly, by the persons who beneficially owned the Corporation's outstanding voting securities immediately prior to such transaction;

(ii) The sale, transfer or other disposition of all or substantially all of the Corporation's assets as an entirety or substantially as an entirety, occurring within a 12-month period, and representing, at a minimum, not less than 50 percent of the total gross fair market value of all assets of the Corporation, to any person, entity, or group of persons acting in consort, other than a sale, transfer or disposition to: (A) a stockholder of the Corporation in exchange for or with respect to its stock; (B) an entity, 50 percent or more of the total value or voting power of which is owned, directly or indirectly, by the Corporation; (C) a person, or more than one person acting as a group, that owns, directly or indirectly, 50 percent or more of the total value or voting power of the outstanding stock of the Corporation; or (D) an entity, at least 50 percent of the total value or voting power of which is owned by a person described in (C); or

(iii) Any transaction or series of related transactions pursuant to which any person or any group of persons comprising a "group" within the meaning of Rule 13d-5(b)(1) under the Securities Exchange Act of 1934, as amended (other than the Corporation or a person that, prior to such transaction or series of related transactions, directly or indirectly controls, is controlled by or is under common control with, the Corporation) becomes directly or indirectly the beneficial owner (within the meaning of Rule 13d-3 of the Securities Exchange Act of 1934, as amended) of securities possessing (or convertible into or exercisable for securities possessing) more than 50 percent of the total combined voting power of the Corporation's securities outstanding immediately after the consummation of such transaction or series of related transactions, whether such transaction involves a direct issuance from the Corporation or the acquisition of outstanding securities held by one or more of the Corporation's stockholders; or

(iv) A change in the composition of the Board over a period of 12 consecutive months or less such that a majority of the Board members ceases, by reason of one or more contested elections for Board membership, to be comprised of individuals whose election is endorsed by a majority of the members of the Board immediately before the date of election.

A transaction shall not constitute a Change in Control if its sole purpose is to change the state of the Corporation's incorporation or to create a holding company that will be owned in the same proportions by the persons who held the Corporation's securities immediately before such transaction.

(b) "Corporation" includes any domestic or foreign predecessor entity of the Corporation in a merger or other transaction in which the predecessor's existence ceased on consummation of the transaction.

(c) "Director" means an individual who is or was a director of the Corporation or an individual who, while a director of the Corporation, is or was serving at the Corporation's request as a director, officer, partner, trustee, employee, or agent of another foreign or domestic corporation, partnership, limited liability company, joint venture, trust, employee benefit plan, or other entity. A Director is considered to be serving an employee benefit plan at the Corporation's request if that

Director's duties to the Corporation also impose duties on, or otherwise involve services by, him or her to the plan or to participants in or beneficiaries of the plan.

(d) "Disinterested Director" or "Disinterested Officer" means a Director or Officer, respectively, who at the time of a vote or selection referred to in Section 4(b) or 5(c) is not a party to the Proceeding.

(e) "Enterprise" means (i) the Corporation, (ii) any other corporation, partnership, joint venture, trust, employee benefit plan or other enterprise that is an affiliate or wholly or partially owned subsidiary of the Corporation and of which Indemnitee is or was serving as a director, trustee, general partner, managing member, officer, employee, agent or fiduciary, and (iii) any other corporation, partnership, limited liability company, joint venture, trust, employee benefit plan or other enterprise of which Indemnitee is or was serving at the express written request of the Corporation as a director, trustee, general partner, managing member, officer, employee, agent or fiduciary.

(f) "Expenses" includes all reasonable counsel fees, retainers, court costs, transcript costs, fees of experts, witness fees, travel expenses, duplicating costs, printing and binding costs, telephone charges, postage, delivery service fees, and all other disbursements or expenses of the types customarily incurred in connection with prosecuting, defending, preparing to prosecute or defend, investigating, being or preparing to be a witness in, or otherwise participating in, a Proceeding. Expenses also shall include Expenses incurred in connection with any appeal resulting from any Proceeding, including the premium, security for, and other costs relating to any cost bond, supersede as bond, or other appeal bond or its equivalent. Expenses, however, shall not include amounts paid in settlement by Indemnitee or the amount of judgments or fines against Indemnitee.

(g) "Independent Legal Counsel" means a law firm, or a member of a law firm, that is experienced in matters of corporation law and neither presently is, nor in the past five years has been, retained to represent: (i) the Corporation, (ii) Indemnitee, (iii) any affiliate of the Corporation or Indemnitee, (iv) any member of Indemnitee's immediate family, (v) any company of which Indemnitee is an executive officer, in each case in any matter material to such party, or (vi) any other party to the Proceeding giving rise to a claim for indemnification hereunder. Notwithstanding the

foregoing, the term "Independent Legal Counsel" shall not include any person who, under the applicable standards of professional conduct then prevailing, would have a conflict of interest in representing either the Corporation or Indemnitee in an action to determine Indemnitee's rights under this Agreement.

(h) "Liability" includes the obligation to pay a judgment, settlement, penalty, fine (including an excise tax assessed with respect to an employee benefit plan), or reasonable Expenses actually incurred with respect to a Proceeding.

(i) "Officer" means an individual who is or was an officer of the Corporation or an individual who, while an officer of the Corporation, is or was serving at the Corporation's request as a director, officer, partner, trustee, employee, or agent of another foreign or domestic corporation, partnership, limited liability company, joint venture, trust, employee benefit plan, or other entity. An Officer is considered to be serving an employee benefit plan at the Corporation's request if that Officer's duties to the Corporation also impose duties on, or otherwise involve services by, him or her to the plan or to participants in or beneficiaries of the plan.

(j) "Proceeding" includes any threatened, pending or completed action, suit, arbitration, alternate dispute resolution mechanism, investigation, inquiry, administrative hearing or any other actual, threatened or completed proceeding, whether brought by or in the right of the Corporation or other Enterprise or otherwise and whether civil, criminal, administrative or investigative, in which

Indemnitee was, is or will be involved as a party or otherwise, by reason of the fact that Indemnitee is or was an officer or director of the Corporation, by reason of any action taken by Indemnitee or of any inaction on Indemnitee's part while acting as an officer or director of the Corporation, or by reason of the fact that Indemnitee is or was serving at the request of the Corporation as a director, officer, employee, agent or fiduciary of another Enterprise; in each case whether or not Indemnitee is acting or serving in any such capacity at the time any liability or expense is incurred for which indemnification can be provided under this Agreement; including one pending on or before the date of this Agreement, but excluding one initiated by Indemnitee pursuant to this Agreement to enforce Indemnitee's rights under this Agreement.

(k) "Reviewing Party" shall mean the person or persons making the entitlement determination pursuant to Section 5 of this Agreement, and shall not include a court making any determination under this Agreement or otherwise.

2. Basic Indemnification Arrangement.

(a) Obligation to Indemnify; Standard of Conduct. Except as provided in Sections 2(e), 2(f), 2(g) or 7 below, the Corporation shall indemnify Indemnitee and hold harmless Indemnitee, to the fullest extent authorized or permitted by applicable law, in the event Indemnitee is made a party to a Proceeding because he or she is or was a Director or Officer, against Liability incurred in the Proceeding if:

(1) Indemnitee conducted himself or herself in good faith and in a manner he or she reasonably believed to be in, or not opposed to, the best interests of the Corporation; and

(2) in the case of any criminal Proceeding, Indemnitee had no reasonable cause to believe his or her conduct was unlawful.

(b) Service with Respect to Employee Benefit Plan. Indemnitee's conduct with respect to an employee benefit plan for a purpose he or she believed in good faith to be in the interests of the participants in and beneficiaries of the plan is conduct that satisfies the requirement of Section 2(a)(1).

(c) Reliance as Safe Harbor. For purposes of any determination hereunder, Indemnitee shall be deemed to have acted in good faith and in a manner reasonably believed to be in or not opposed to the best interests of the Corporation, or, with respect to any criminal Proceeding, to have had no reasonable cause to believe Indemnitee's conduct was unlawful, if Indemnitee's conduct was based primarily on: (i) the records or books of account of the Corporation or relevant entity, including financial statements, (ii) information supplied to Indemnitee by the officers of the Corporation or relevant entity in the course of their duties, (iii) the advice of legal counsel for the Corporation or relevant entity, or (iv) information or records given or reports made to the Corporation or relevant entity by an independent certified public accountant, or by an appraiser or other expert selected with reasonable care by the Corporation or relevant entity. The provisions of this Section 2(c) shall not be deemed to be exclusive or to limit in any way the other circumstances in which Indemnitee may be deemed to have met the relevant standard of conduct set forth in this Agreement.

(d) Termination of Proceeding Not Determinative. The termination of a Proceeding by judgment, order, settlement, or conviction, or upon a plea of nolo contendere or its equivalent shall not, of itself, create a presumption or be determinative that Indemnitee is not entitled to indemnification or reimbursement of Expenses hereunder or otherwise.

(e) Limits on Indemnification. Unless, and then only to the extent that, a court of competent jurisdiction acting pursuant to Section 6 of this Agreement or the Delaware General Corporation Law, determines that, in view of the circumstances of the case, Indemnitee is fairly and reasonably entitled to indemnification, the Corporation shall not indemnify Indemnitee under this Agreement:

(1) in connection with a Proceeding by or in the right of the Corporation, except for reasonable Expenses (including an excise tax assessed with respect to an employee benefit plan) and amounts paid in settlement not exceeding, in the judgment of the Board, the estimated expense of litigating the Proceeding to conclusion, actually and reasonably incurred in connection with the defense or settlement of the Proceeding, including any appeal thereof; or

(2) in connection with a Proceeding by or in the right of the Corporation with respect to any claim, issue or matter as to which Indemnitee shall have been adjudged liable to the Corporation.

(f) Proceeding Brought by Indemnitee. Notwithstanding any other provision of this Agreement, Indemnitee shall not be entitled to indemnification or advancement of Expenses under this Agreement with respect to any Proceeding or claim brought or made by Indemnitee against the Corporation or its Directors, Officers, employees or other indemnitees, other than (i) a Proceeding or claim seeking or defending Indemnitee's right to indemnification or advancement of Expenses pursuant to Section 6 of this Agreement or otherwise, or (ii) a Proceeding authorized by the Board prior to its initiation.

(g) Settlements. The Corporation acknowledges that a settlement or other disposition short of final judgment may be successful if it permits a party to avoid expense, delay, distraction, disruption and uncertainty. In the event that any Proceeding to which Indemnitee is a party is resolved in any manner other than by adverse judgment against Indemnitee (including settlement of such Proceeding with or without payment of money or other consideration) it shall be presumed that Indemnitee has been successful on the merits or otherwise in such Proceeding. Anyone seeking to overcome this presumption shall have the burden of proof and the burden of persuasion by clear and convincing evidence.

(h) Mandatory Indemnification. The Corporation shall indemnify Indemnitee to the extent that he or she has been successful, on the merits or otherwise, in the defense of any Proceeding to which Indemnitee was a party, or in defense of any claim, issue or matter, because Indemnitee is or was a Director or Officer, against reasonable Expenses incurred by Indemnitee in connection with the Proceeding.

3. Contribution.

(a) Whether or not the indemnification provided hereunder is available, in respect of any Proceeding in which the Corporation is jointly liable with Indemnitee (or would be if joined in such Proceeding), the Corporation shall pay the entire amount of any Expenses, judgments, penalties, fines or amounts paid or to be paid in settlement of such Proceeding without requiring Indemnitee to contribute to such payment and the Corporation hereby waives and relinquishes any right of contribution it may have against Indemnitee. The Corporation shall not enter into any settlement of any Proceeding in which the Corporation is jointly liable with Indemnitee (or would be if joined in such Proceeding) unless such settlement provides for a full and final release of all claims asserted against Indemnitee without any injunction or other equitable relief being imposed against Indemnitee.

(b) Without diminishing or impairing the obligations of the Corporation set forth in the preceding subparagraph, if, for any reason, Indemnitee shall elect or be required to pay all or any portion of any judgment or settlement in any Proceeding in which the Corporation is jointly liable with Indemnitee (or would be if joined in such Proceeding), the Corporation shall contribute to the amount of Expenses, judgments, penalties, fines and amounts paid in settlement actually and reasonably incurred and paid or payable by Indemnitee in proportion to the relative benefits received by the Corporation and all officers, directors or employees of the Corporation, other than Indemnitee, who are jointly liable with Indemnitee (or would be if joined in such Proceeding), on the one hand, and Indemnitee, on the other hand, from the transaction from which such Proceeding arose; provided, however, that the proportion determined on the basis of relative benefit may, to the extent necessary to conform to law, be further adjusted by reference to the relative fault of the Corporation and all officers, directors or employees of the Corporation other than Indemnitee who are jointly liable with

Indemnitee (or would be if joined in such Proceeding), on the one hand, and Indemnitee, on the other hand, in connection with the events that resulted in such Expenses, judgments, penalties, fines or settlement amounts, as well as any other equitable considerations which the Delaware General Corporation Law may require to be considered. The relative fault of the Corporation and all officers, directors or employees of the Corporation, other than Indemnitee, who are jointly liable with Indemnitee (or would be if joined in such Proceeding), on the one hand, and Indemnitee, on the other hand, shall be determined by reference to, among other things, the degree to which their actions were motivated by intent to gain personal profit or advantage, the degree to which their liability is primary or secondary and the degree to which their conduct is active or passive.

(c) The Corporation hereby agrees to indemnify and hold harmless Indemnitee from any claims of contribution which may be brought by officers, directors or employees of the Corporation, other than Indemnitee, who may be jointly liable with Indemnitee.

4. Advances for Expenses.

(a) Obligations and Requirements. The Corporation shall advance, to the extent not prohibited by applicable law, the Expenses incurred by or on behalf of Indemnitee in connection with any Proceeding, and such advancement shall be made within thirty (30) days after the receipt by the Corporation of any statement requesting such advances (which shall include invoices received by Indemnitee in connection with such Expenses but, in the case of invoices in connection with legal services, any references to legal work performed or to expenditures made that would cause Indemnitee to waive any privilege accorded by applicable law shall not be included with the invoice) from time to time, whether prior to or after final disposition of any Proceeding. Any such statement shall reasonably evidence the Expenses incurred by Indemnitee. Advances shall be unsecured and interest free. Advances shall be made without regard to Indemnitee's ability to repay the expenses and without regard to Indemnitee's ultimate entitlement to indemnification under the other provisions of this Agreement. Advances shall include any and all reasonable Expenses incurred pursuing an action to enforce this right of advancement, including Expenses incurred preparing and forwarding statements to the Corporation to support the advances claimed. Indemnitee shall qualify for advances upon the execution and delivery to the Corporation of this Agreement, subject to the condition that if and to the extent that it is ultimately determined by a court of competent jurisdiction in a final judgment, not subject to appeal, that Indemnitee is not entitled to be indemnified by the Corporation, Indemnitee shall undertake to the fullest extent permitted by law to repay the advance. Such undertaking shall be an unlimited general obligation of Indemnitee but need not be secured and shall be accepted without reference to Indemnitee's financial ability to make repayment. The right to advances under this Section 4 shall in all events continue until final disposition of any Proceeding, including any appeal thereof.

(b) Evaluation of Reasonableness of Expenses. Evaluation as to reasonableness of Expenses of Indemnitee in the specific case shall be made in the same manner as the determination that

indemnification is permissible, as described in Section 5 below, except that if the determination is made by Independent Legal Counsel, evaluation as to reasonableness of Expenses shall be made by those entitled under Section 5(c)(3) to select Independent Legal Counsel. Notwithstanding the foregoing sentence, any Expenses claimed by Indemnitee shall be deemed reasonable if the Reviewing Party fails to make the reasonableness evaluation within thirty (30) days following the Corporation's receipt of invoices for specific Expenses to be reimbursed or advanced.

5. Authorization of and Determination of Entitlement to Indemnification.

(a) Entitlement Determination. The Corporation and Indemnitee acknowledge that indemnification of Indemnitee under Section 2 of this Agreement has been pre-authorized by the Corporation as permitted by the Delaware General Corporation Law. Nevertheless, the Corporation shall not indemnify Indemnitee under Section 2 unless a separate determination has been made in the specific case that indemnification of Indemnitee is permissible in the circumstances because Indemnitee has met the relevant standard of conduct set forth in Section 2(a); provided, however, that: (i) no such entitlement decision need be made prior to the advancement of Expenses; and (ii) regardless of the result or absence of any such determination, the Corporation shall make any indemnification mandated by Section 2(h) above.

(b) To obtain indemnification (including advancement of Expenses) under this Agreement, Indemnitee shall submit to the Corporation a written request, including therein or therewith such documentation and information as is reasonably available to Indemnitee and is reasonably necessary to determine whether and to what extent Indemnitee is entitled to indemnification. The Secretary of the Corporation shall, promptly upon receipt of such a request for indemnification, advise the Board in writing that Indemnitee has requested indemnification.

(c) Reviewing Party. The determination referred to in Section 5(a) shall be made, at the election of the Board, by any of the following Reviewing Parties (unless a Change in Control shall have occurred after Indemnitee first began serving as a Director or Officer, in which case Indemnitee shall be entitled to designate that the determination shall be made by Independent Legal Counsel selected in the manner set forth in Section 5(d) below):

(1) by the Board by a majority vote of a quorum consisting of Disinterested Directors; or

(2) by a majority vote of a committee duly designated by the Board (in which designation directors who do not qualify as Disinterested Directors may participate) consisting solely of two or more Disinterested Directors; or

(3) by Independent Legal Counsel: (A) Selected in the manner prescribed in paragraph (1) or (2) of this Section 5(c); or (B) if a quorum of Directors cannot be obtained for purposes of paragraph (1) and the committee cannot be designated under paragraph (2), selected by a majority vote of the full Board (in which selected directors who do not qualify as Disinterested Directors may participate); or

(4) by the stockholders of the Corporation, by a majority vote of a quorum consisting of stockholders who were not Parties to that Proceeding or, if no such quorum is obtainable, by a majority vote of stockholders who were not Parties to that Proceeding.

(d) Selection of Counsel after Change in Control. If a Change in Control shall have occurred, Independent Legal Counsel shall be selected by Indemnitee (unless Indemnitee requests that the

selection be made in the manner described in Section 5(c)(3)), and Indemnitee shall give written notice to the Corporation advising it of the identity of the Independent Legal Counsel so selected. In either event, Indemnitee or the Corporation, as the case may be, may, within fifteen (15) days after the written notice of selection has been given, deliver to the Corporation or to Indemnitee, as the case may be, a written objection to the selection; provided, however, that the objection may be asserted only on the ground that the counsel so selected does not meet the requirements of "Independent Legal Counsel" as defined in Section 1 of this Agreement. The objection shall set forth with particularity the factual basis of the assertion. If a written objection is made and substantiated, the counsel selected may not serve as Independent Legal Counsel unless and until the objection is withdrawn or a court has determined that the objection is without merit. If, within fifteen (15) days after submission by Indemnitee of a written request for indemnification, no Independent Legal Counsel shall have been selected and not objected to, either the Corporation or Indemnitee may petition the court conducting the Proceeding, or another court of competent jurisdiction, for resolution of any objection that shall have been made by the Corporation or Indemnitee to the other's selection of Independent Legal Counsel and/or for the appointment as Independent Legal Counsel of a person selected by the court or by another person that the court shall designate, and the person with respect to whom all objections are so resolved or the person so appointed shall act as Independent Legal Counsel under Section 5(c).

(e) Cooperation by Indemnitee. Indemnitee shall cooperate with the Reviewing Party with respect to its determination of Indemnitee's entitlement to indemnification, including providing to the Reviewing Party on reasonable advance request any documentation or information which is not privileged or otherwise protected from disclosure and which is reasonably available to Indemnitee and reasonably necessary to the determination. Any Expenses incurred by Indemnitee in so cooperating with the Reviewing Party shall be borne by the Corporation, regardless of the determination as to Indemnitee's entitlement to indemnification.

(f) If the Reviewing Party shall not have made a determination within sixty (60) days after receipt by the Corporation of the request therefor, the requisite determination of entitlement to indemnification shall be deemed to have been made and Indemnitee shall be entitled to such indemnification absent (i) a misstatement by Indemnitee of a material fact, or an omission of a material fact necessary to make Indemnitee's statement not materially misleading, in connection with the request for indemnification, or (ii) a prohibition of such indemnification under applicable law; provided, however, that (x) such 60-day period may be extended for a reasonable time, not to exceed an additional thirty (30) days, if the Reviewing Party in good faith requires such additional time to obtain or evaluate documentation and/or information relating thereto; and (y) that the foregoing provisions of this Section 5(f) shall not apply if the determination of entitlement to indemnification is to be made by the stockholders pursuant to Section 5(c)(4) and if (A) within fifteen (15) days after receipt by the Corporation of the request for such determination, the Board or the Disinterested Directors, if appropriate, resolve to submit such determination to the stockholders for their consideration at an annual meeting thereof to be held within seventy-five (75) days after such receipt and such determination is made thereat, or (B) a special meeting of stockholders is called within fifteen (15) days after such receipt for the purpose of making such determination, such meeting is held for such purpose within sixty (60) days after having been so called and such determination is made thereat.

(g) Other.

(i) In making a determination with respect to entitlement to indemnification hereunder, the Reviewing Party shall presume that Indemnitee is entitled to indemnification under this Agreement, and anyone seeking to overcome this presumption shall have the burden of proof and the burden of persuasion by clear and convincing evidence. Neither the failure of the Corporation (including by its directors or Independent Legal Counsel) to have made a determination prior to the commencement of any action

pursuant to this Agreement that indemnification is proper in the circumstances because Indemnitee has met the applicable standard of conduct, nor an actual determination by the Corporation (including by its directors or Independent Legal Counsel) that Indemnitee has not met such applicable standard of conduct, shall create a presumption that Indemnitee has not met the applicable standard of conduct.

(ii) The Reviewing Party, however chosen, shall make the requested determination as promptly as reasonably practicable after a request for indemnification is presented.

(iii) Any determination by Independent Legal Counsel under this Section 5 shall be delivered in the form of a written opinion to the Board with a copy to Indemnitee.

(iv) The Corporation shall pay any and all reasonable fees and expenses of Independent Legal Counsel incurred by the counsel in connection with acting pursuant to this Section 5, and the Corporation shall pay all reasonable fees and expenses incident to the procedures of this Section 5, regardless of the manner in which such Independent Legal Counsel was selected or appointed.

(v) On the due commencement of any action to seek court-ordered indemnification pursuant to Section 6 of this Agreement, Independent Legal Counsel shall be discharged and relieved of any further responsibility in that capacity, subject to the applicable standards of professional conduct then prevailing.

6. Court-Ordered Indemnification and Advances for Expenses.

(a) Procedure. If Indemnitee is a party to a Proceeding, he or she may apply for indemnification or for advances for Expenses to the court conducting the Proceeding or to another court of competent jurisdiction. For purposes of this Agreement, the Corporation consents to personal jurisdiction and venue in any court in which is pending a Proceeding to which Indemnitee is a party. Regardless of any determination by the Reviewing Party that Indemnitee is not entitled to indemnification or to advancement of Expenses or as to the reasonableness of Expenses, and regardless of any failure by the Reviewing Party to make a determination as to the entitlement or the reasonableness of Expenses, the court's review shall be a de novo review. After receipt of an application and after giving any notice it considers necessary, the court may:

(1) order indemnification or the advance for Expenses if it determines that Indemnitee is entitled to indemnification or to advance for Expenses under this Agreement, the Delaware General Corporation Law or otherwise; or

(2) order indemnification or the advance for Expenses if it determines that, in view of all the relevant circumstances, it is fair and reasonable to indemnify Indemnitee, or to advance Expenses to Indemnitee, regardless of whether Indemnitee has met the relevant standard of conduct, complied with the requirements for advancement of Expenses, or been adjudged liable in a Proceeding referred to in Section 2(e) above (in which case any court-ordered indemnification need not be limited to Expenses incurred by Indemnitee, but may include penalties, fines, amounts paid in settlement, judgments and any other amounts ordered by the court to be indemnified or advanced).

(b) Payment of Expenses to Seek Court-Ordered Indemnification. If the court determines that Indemnitee is entitled to indemnification or to advance for Expenses, the Corporation shall pay Indemnitee's reasonable Expenses to obtain the court-ordered indemnification or advance for Expenses.

7. Limitations on Indemnification. Regardless of whether Indemnitee has met the relevant standard of conduct set forth in Section 2(a), nothing in this Agreement shall require or permit indemnification of Indemnitee for any Liability or Expenses incurred in a Proceeding in which a judgment or other final adjudication establishes that Indemnitee's actions or omissions to act were material to the cause of action so adjudicated and constitute:

(a) a violation of criminal law, unless Indemnitee had reasonable cause to believe his or her conduct was lawful or had no reasonable cause to believe his or her conduct was unlawful;

(b) a transaction from which Indemnitee derived an improper personal benefit, including, without limitation, any benefits received through the purchase and sale by Indemnitee of securities of the Corporation within the meaning of Section 16(b) of the Securities Exchange Act of 1934, as amended, or similar provisions of state statutory law or common law; or

(c) willful misconduct or a conscious disregard for the best interests of the Corporation in a Proceeding by or in the right of the Corporation to procure a judgment in its favor or in a Proceeding by or in the right of a stockholder of the Corporation.

8. Exclusive Forum. The Corporation and Indemnitee acknowledge and agree that the sole and exclusive forum for any cause of action brought by the Corporation or Indemnitee arising under this Agreement shall be the United States District Court for the District of Delaware, if a basis for federal court jurisdiction is present, or otherwise, at the Delaware Court of Chancery, and the Corporation and Indemnitee each hereby submit to the personal jurisdiction of such court(s).

9. Vested Rights; Specific Performance. No amendment to the Certificate of Incorporation or Bylaws of the Corporation or any other corporate action shall in any way limit Indemnitee's rights under this Agreement. In any Proceeding brought by or on behalf of Indemnitee to specifically enforce the provisions of this Agreement, the Corporation waives the claim or defense in that Proceeding that the plaintiff or claimant has an adequate remedy at law, and the Corporation shall not urge in any such Proceeding the claim or defense that an adequate remedy at law exists. The provisions of this Section 9, however, shall not prevent Indemnitee from seeking a remedy at law in connection with any breach of this Agreement.

10. Liability Insurance. To the extent the Corporation maintains an insurance policy or policies providing directors' or officers' liability insurance, Indemnitee shall be covered by that policy or those policies, in accordance with its or their terms, to the maximum extent of the coverage provided under that policy or those policies in effect for any other Director or Officer of the Corporation, as the case may be.

11. Witness Fees. Notwithstanding any other provision in this Agreement, to the extent that Indemnitee is made a witness in any Proceeding to which Indemnitee is not a party, because he or she is or was a Director or Officer, the Corporation shall indemnify and hold harmless Indemnitee against all Expenses actually and reasonably incurred by Indemnitee or on Indemnitee's behalf in connection therewith.

12. Security for Indemnification Obligations. The Corporation may at any time and in any manner, at the discretion of the Board, secure the Corporation's obligations to indemnify or advance Expenses to Indemnitee pursuant to this Agreement.

13. Non-exclusivity, No Duplication of Payments. The rights of Indemnitee under this Agreement shall be in addition to any other rights with respect to indemnification, advancement of

Expenses or otherwise that Indemnitee may have under the Certificate of Incorporation or Bylaws, the Delaware General Corporation Law or otherwise; provided, however, that the Corporation shall not be liable under this Agreement to make any payment to Indemnitee under this Agreement to the extent Indemnitee has otherwise actually received payment (under any insurance policy, provision of the Certificate of Incorporation or Bylaws, or otherwise) of the amounts otherwise payable under this Agreement. The Corporation's obligation to indemnify or advance expenses under this Agreement to Indemnitee who is or was serving at the request of the Corporation as a director, officer, partner, trustee, employee or agent of any other entity shall be reduced by any amount Indemnitee has actually received as indemnification or advancement of expenses from that other entity.

14. Amendments. To the extent that the provisions of this Agreement are held to be inconsistent with the provisions of the Delaware General Corporation Law, the provisions of that statute shall govern. To the extent that the Delaware General Corporation Law is later amended to permit a Delaware corporation, without the need for stockholder approval, to provide to its directors greater rights to indemnification or advancement of Expenses than those specifically set forth here, this Agreement shall be deemed amended to require the greater indemnification or more liberal advancement of Expenses to Indemnitee, in each case consistent with the Delaware General Corporation Law as so amended from time to time. Otherwise, no supplement, modification or amendment of this Agreement shall be binding unless executed in writing by the Corporation and Indemnitee.

15. Subrogation. In the event of payment under this Agreement, the Corporation shall be subrogated to the extent of that payment to all of the rights of recovery of Indemnitee, who shall execute all papers required and shall do everything that may be necessary to secure those rights, including the execution of documents necessary to enable the Corporation effectively to bring suit to enforce those rights; provided, however, that any rights of recovery of Indemnitee pursuant to any liability insurance policy separately paid for by Indemnitee shall not be subject to subrogation under this Section 15 except that any amounts recovered under such policy shall be subject to Section 13 hereof.

16. Waiver. No waiver of any of the provisions of this Agreement shall be deemed or shall constitute a waiver of any other provisions of this Agreement (whether or not similar) nor shall such a waiver constitute a continuing waiver.

17. Binding Effect, Etc. This Agreement shall be binding on and inure to the benefit of and be enforceable by the parties to this Agreement and their respective successors or assigns (including any direct or indirect successor or assign by purchase, merger, consolidation or otherwise to all or substantially all of the business and/or assets of the Corporation), spouses, heirs, and personal and legal representatives.

18. Applicability of Agreement. This Agreement shall apply retroactively with respect to acts or omissions of Indemnitee occurring since the date that Indemnitee first became a Director or Officer, and this Agreement shall continue in effect regardless of whether Indemnitee continues to serve as a Director or Officer, but only in respect of acts or omissions occurring prior to the termination of Indemnitee's service as a Director or Officer.

19. Severability. If any provision or provisions of this Agreement shall be held to be invalid, illegal, or unenforceable for any reason whatsoever:

(a) the validity, legality, and enforceability of the remaining provisions of this Agreement (including without limitation, each portion of any Section of this Agreement containing any such provision held to be invalid, illegal, or unenforceable, that is not itself invalid, illegal, or unenforceable) shall not in any way be affected or impaired by it;

(b) the provision or provisions shall be deemed reformed to the extent necessary to conform to applicable law and to give the maximum effect to the intent of the parties to this Agreement; and

(c) to the fullest extent possible, the provisions of this Agreement (including, without limitation, each portion of any Section of this Agreement containing any provision held to be invalid, illegal, or unenforceable, that is not itself invalid, illegal, or unenforceable) shall be construed so as to give effect to the intent manifested by it.

20. Governing Law. This Agreement shall be governed by and construed and enforced in accordance with the laws of the State of Delaware applicable to contracts made and to be performed in Delaware without giving effect to the principles of conflicts of laws.

21. Headings. The headings of the Sections of this Agreement are inserted for convenience only and shall not be deemed to constitute part of this Agreement or to affect the construction of this Agreement.

22. Inducement. The Corporation expressly confirms and agrees that it has entered into this Agreement and assumed the obligations imposed on it under this Agreement in order to induce Indemnitee to serve or continue to serve as a Director and/or Officer, and the Corporation acknowledges that Indemnitee is relying on this Agreement in serving as a director, officer, employee or agent of the Corporation or, at the request of the Corporation, as a director, officer, partner, trustee, employee, or agent of another foreign or domestic corporation, partnership, limited liability company, joint venture, trust, employee benefit plan or other entity.

23. Notice by Indemnitee. Indemnitee agrees promptly to notify the Corporation in writing upon being served with any summons, citation, subpoena, complaint, indictment, information, or other document relating to any Proceeding or matter which may be subject to indemnification or advancement of Expenses covered under this Agreement. The failure of Indemnitee so to notify the Corporation shall not relieve the Corporation of any obligation that it may have to Indemnitee under this Agreement or otherwise.

24. Notices. All notices, requests, demands, and other communications under this Agreement shall be in writing and shall be deemed to have been duly given if: (i) delivered by hand and receipted for by the party to whom the notice or other communication shall have been directed; or (ii) mailed by certified or registered mail with postage prepaid, on the third business day after the date on which it is so mailed if to the Corporation, to the principal office address of the Corporation, or if to Indemnitee, to the address of Indemnitee last on file with the Corporation, or to any other address that may have been furnished to Indemnitee by the Corporation or to the Corporation by Indemnitee, as the case may be.

[Signature page follows.]

The parties hereto have entered into this Agreement effective as of the date first above written.

The Corporation:

LIQUIDIA TECHNOLOGIES, INC.

By: _____
Name:
Title:

Indemnitee:

_____
[ ]

Address:

[Signature Page to Liquidia Technologies, Inc. Indemnification Agreement]

EXECUTION COPY
CONFIDENTIAL

INHALED COLLABORATION AND OPTION AGREEMENT

This **INHALED COLLABORATION AND OPTION AGREEMENT** (the "**Agreement**") is entered into as of June 15, 2012 (the **"Effective Date"**) by and between **LIQUIDIA TECHNOLOGIES, INC.**, a Delaware corporation, having its principal place of business at 419 Davis Dr., Suite 100, Morrisville, NC 27560 ("**Liquidia**"), and **GLAXO GROUP LIMITED**, a company organized and existing under the laws of England and having an office and place of business at Glaxo Wellcome House, Berkeley Avenue, Greenford, Middlesex, UB6 ONN, United Kingdom ("**GSK**"). Liquidia and GSK are sometimes referred to herein individually as a "**Party**" and collectively as the "**Parties**."

RECITALS

WHEREAS, Liquidia controls certain technology for the formulation and/or delivery of small molecule, diagnostic, or biologic constructs, generally known as its PRINT platform technology, including PRINT particles, particle formulations, and PRINT processing technology;

WHEREAS, GSK possesses resources and expertise in the research, development, marketing, and commercialization of pharmaceutical products, and desires to develop pharmaceutical products using Liquidia's PRINT platform;

WHEREAS, Liquidia and GSK desire to collaborate on research regarding application of Liquidia's PRINT platform to pharmaceutical products upon the terms and conditions set forth herein;

WHEREAS, Liquidia desires to grant to GSK certain exclusive options and licenses as further described in this Agreement with respect to certain of Liquidia's intellectual property rights to enable GSK to further develop Research Products and commercialize Inhaled Products on the terms and conditions set forth herein; and

WHEREAS, Liquidia and GlaxoSmithKline Biologicals S.A. have entered into the Vaccine Collaboration Agreement (as defined below), and the Joint Steering Committee (as defined below) will oversee the Collaboration Program conducted under both this Agreement and the Vaccine Collaboration Agreement.

NOW, THEREFORE, in consideration of the foregoing premises and the mutual covenants and conditions contained in this Agreement, the Parties agree as follows:

ARTICLE 1
DEFINITIONS

Unless the context otherwise requires, the terms in this Agreement with initial letters capitalized, shall have the meanings set forth below, or the meaning as designated in the indicated places throughout this Agreement.

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

1.1 "Acceptable Label" means, for an applicable Product, a label for such Product as issued and approved by the applicable Regulatory Authority and acceptable to GSK in its sole discretion.

1.2 "Acquiror" has the meaning set forth in Section 17.5(a).

1.3 "Action" has the meaning set forth in Section 11.6(b)(i).

1.4 "Affiliate" means, with respect to a particular Party, a person, corporation, partnership, or other entity that controls, is controlled by or is under common control with such Party. For the purposes of this definition, the word "control" (including, with correlative meaning, the terms "controlled by" or "under common control with") means the actual power, either directly or indirectly through one or more intermediaries, to direct or cause the direction of the management and policies of such entity, whether by the ownership of fifty percent (50%) or more (or such lesser percentage which is the maximum allowed to be owned by a person, corporation, partnership or other entity in a particular jurisdiction) of the voting stock of such entity, or by contract or otherwise.

1.5 "Agreement" has the meaning set forth in the preamble.

1.6 "Alliance Manager" has the meaning set forth in Section 2.3.

1.7 "Anti-Corruption Laws" means the Foreign Corrupt Practices Act of 1977 and the UK Bribery Act, and any similar Laws in jurisdictions other than the U.S. and United Kingdom.

1.8 "Antigen" means any material that induces an adaptive immune response specific to itself. **"Antigen(s)"** includes antigens from viruses, bacteria, parasites, self or addiction as a Vaccine target. **"Antigen"** shall exclude the following: (a) antigens expressed from DNA or RNA *in vivo* (where the DNA or RNA is not in a live vector); (b) Free Polysaccharide; and (c) live replicating virus when the virus is contained in PRINT Material. For the sake of clarity, the Antigens included in the scope of the Vaccines Option granted to GSK hereunder encompass pre-conjugated polysaccharides and other live vectors.

1.9 "Bankruptcy Code" has the meaning set forth in Section 15.4.

1.10 "BLA" means a Biologicals License Application (as more fully defined in 21 C.F.R. 601 *et. seq*., or its successor provisions) and all amendments and supplements thereto.

1.11 "BMGF" means the Bill & Melinda Gates Foundation.

1.12 "BMGF Letter Agreement" means the letter agreement between Liquidia and BMGF dated February 18, 2011, as amended October 25, 2011.

1.13 "Business Day" means a day on which banking institutions in London, England and New York, New York are open for business, but excluding the nine (9) consecutive calendar days beginning on December 24th and continuing through January 1st of each calendar year during the Term, and all Saturdays and Sundays.

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

1.14 "Chairperson" has the meaning set forth in Section 2.1(a).

1.15 "Change of Control" means the occurrence of any of the following: (a) a Party enters into a merger, consolidation, stock sale or sale or transfer of all or substantially all of its assets to which this Agreement relates, or other similar transaction or series of transactions with a Third Party; or (b) any transaction or series of related transactions in which any Third Party or group of Third Parties acquires beneficial ownership of securities of a Party representing more than fifty percent (50%) (or such lesser percentage which is the maximum allowed to be owned by a Third Party in a particular jurisdiction) of the combined voting power of the then outstanding securities of such Party. Notwithstanding the foregoing, a stock sale to underwriters of a public offering of a Party's capital stock or a stock sale to Third Parties solely for the purpose of financing or a transaction solely to change the domicile of a Party shall not constitute a Change of Control.

1.16 "Claims" has the meaning set forth in Section 13.1.

1.17 **"Clinical Trial"** means any human clinical trial of a Research Product or Liquidia Respiratory Product.

1.18 **"CMC"** has the meaning set forth in Section 7.1.

1.19 **"Co-Delivery Vaccine Field"** has the meaning set forth in the Vaccine Collaboration Agreement.

1.20 **"COGS"** means the Standard Cost of manufacture and supply of the PRINT Material used in the Products, calculated annually for the period January 1st to December 31st, in accordance with IFRS. For purposes of this definition, **"Standard Cost"** means the sum of the Direct Costs and Indirect Costs attributable to the supply of the PRINT Material used in the Products. **"Direct Costs"** include those components that can be specifically identified as either raw ingredients, bought in intermediates or finishing supplies necessary to produce the PRINT Materials and the man hours necessary to perform the actual process of manufacturing the PRINT Materials (including processing and packaging, equipment operators, line mechanics, set up mechanics and material handlers to supply the line). **"Indirect Costs"** include those costs related directly to the manufacture and supply of the PRINT Materials, other than Direct Costs, including external tolling fees and other third party manufacturing expenses, shipping, insurance and quality control, as well as costs for the PRINT Materials that exist regardless of whether or not the supply occurs, including depreciation (which reflects on a *pro rata* basis the use of assets used for manufacture and supply of the product), utilities (e.g. electricity), facility maintenance, supervisory staff, warehouse allocations, plant support staff, corporate allocations, systems support and technical support for labor, in each case to the extent attributable to the manufacture and supply of the PRINT Materials. For clarity, "Standard Costs" do not include the following: plant costs incurred due to rework of the PRINT Materials, with the exception of a reasonable allowance in line with historical performance; value of PRINT Materials discarded in the manufacturing process (other than process related scrap); costs related to manufacturing process development; allocations of overhead incurred outside of the manufacturing and supply process such as support, business development, accounting, taxes and legal; and selling and administrative expenses.

1.21 **"Collaboration Costs"** has the meaning set forth in Section 3.4.

1.22 **"Collaboration Know-How"** has the meaning set forth in Section 11.3.

1.23 **"Collaboration Program"** means the conduct of both the Inhaled Collaboration and Vaccine Collaboration.

1.24 **"Combination"** has the meaning set forth in Section 1.109.

1.25 **"Commercial Supply Agreement"** has the meaning set forth in Section 9.2.

1.26 **"Commercially Reasonable Efforts"** means, with respect to a Party, such efforts that are consistent with the efforts and resources generally used by such Party in the exercise of its reasonable business discretion relating to the research, development and commercialization of a pharmaceutical product owned by it or to which it has exclusive rights, with similar product characteristics, which is of similar market potential at a similar stage in its development or product life, taking into account issues of patent coverage, safety and efficacy, product profile, the competitiveness of the marketplace, the proprietary position of the compound or product, the regulatory structure involved, the potential or actual profitability of the applicable products (including pricing and reimbursement status achieved or to be achieved), and other relevant factors, including technical, legal, scientific and/or medical factors. For purposes of clarity, Commercially Reasonable Efforts would be determined on a market-by-market and indication-by-indication basis for a particular Research Product or Product and it is anticipated that the level of effort may be different for different markets and may change over time, reflecting changes in the status of the Research Product or Product and the market(s) involved.

1.27 **"Committee Party(ies)"** has the meaning set forth in Section 2.1.

1.28 **"Confidential Information"** of a Party means any and all Know-How of such Party that is disclosed to the other Party under this Agreement, whether in oral, written, graphic, or electronic form. All Know-How disclosed by either Party pursuant to the Confidential Disclosure Agreement between the Parties dated March 9, 2011, and Amendment #1 To Confidential Disclosure Agreement dated January 25, 2012 (collectively, the "**Confidentiality Agreement**") shall be deemed to be such Party's Confidential Information disclosed hereunder.

1.29 **"Consulting Agreement"** means the Consulting Agreement between Liquidia and Joseph M. DeSimone (the **"Consultant"**), dated June 8, 2004, as amended.

1.30 **"Control"** means, with respect to any material, Know-How, Patent or other intellectual property right, that a Party (a) owns or (b) has a license (other than a license granted to such Party under this Agreement) to such material, Know-How, Patent or other intellectual property right and, in each case, has the ability to grant to the other Party access, a license, or a sublicense (as applicable) to the foregoing on the terms and conditions set forth in this Agreement without violating the terms of any then-existing agreement or other arrangement with any Third Party.

1.31 **"CPR"** has the meaning set forth in Section 16.3.

1.32 **"Development Delay"** has the meaning set forth in Section 6.2.

1.33 **"Development Supply Agreement"** has the meaning set forth in Section 9.1(b).

1.34 **"Disease Field"** has the meaning set forth in the Vaccine Collaboration Agreement.

1.35 **"Dollar"** means a U.S. dollar, and "**$**" shall be interpreted accordingly.

1.36 **"Effective Date"** has the meaning set forth in the preamble.

1.37 **"EMA"** means the European Medicines Agency or any successor entity.

1.38 **"Enforcing Party"** has the meaning set forth in Section 11.6(b)(iii).

1.39 **"EU"** or **"European Union"** means the European Union member states as then constituted.

1.40 **"Excluded Applications"** has the meaning set forth in the Vaccine Collaboration Agreement.

1.41 **"Executive Officer"** means, with respect to Liquidia, its Chief Executive Officer, with respect to GSK, its Senior Vice President of Platform Technology and Science, and with respect to GSK Bio, its Senior Vice President Research and Development Prophylactic Vaccines, or in each case, such Executive Officer's designee, provided such designee is at a Vice President level or above.

1.42 **"Exercised Disease Field"** has the meaning set forth in the Vaccine Collaboration Agreement.

1.43 **"Exercised Field"** means the Liquidia Respiratory Field if GSK exercises the Liquidia Respiratory Option, and the Inhaled Field if GSK exercises the Inhaled Option.

1.44 **"FD&C Act"** means the U.S. Federal Food, Drug and Cosmetic Act, as amended, and applicable regulations promulgated thereunder by the FDA.

1.45 **"FDA"** means the U.S. Food and Drug Administration or any successor entity.

1.46 **"First Commercial Sale"** means, with respect to a Product, the first sale of such Product to a Third Party by or on behalf of GSK, its Affiliates or sublicensees in a given regulatory jurisdiction following the receipt of Regulatory Approval.

1.47 **"Free Polysaccharide"** means a polysaccharide that is not conjugated to a protective protein Antigen or carrier protein before it is contained in or associated with PRINT Material.

1.48 **"FTE"** means the equivalent of a full-time professional individual's work, at 1,950 hours per year, as adjusted to account for vacation and other permitted time off, for a

twelve (12)-month period. If any part-time personnel of Liquidia performs activities in furtherance of the Inhaled Collaboration under this Agreement, the full time equivalent to be attributed to such work shall reflect appropriate adjustment for such personnel's reduced total work time relative to full time personnel. FTE efforts shall include professional, scientific or technical work and shall not include general corporate and administrative overhead. Liquidia shall track FTEs using its standard practice and normal systems and methodologies.

1.49 **"FTE Costs"** means, for any period, (a) the percentage of time each FTE is involved in activities in furtherance of the performance of the Inhaled Collaboration in accordance with this Agreement, multiplied by (b) the number of FTEs involved in such activities for such percentage of time, multiplied by (c) an amount equal to the FTE Rate then in effect. For example, if eight (8) Liquidia employees devote fifty percent (50%) of their time to the performance of the Inhaled Collaboration during the first year of this Agreement, then the associated FTE Costs for such employees for such period would be 8x0.5x[***]=$[***]. For the avoidance of doubt, FTE Costs shall not include the costs of personnel serving as JSC, JIRC or JPC members, or Alliance Managers, in their duties as JSC, JIRC or JPC members or Alliance Managers.

1.50 **"FTE Rate"** means, as of the Effective Date, an annual rate of $[***] per FTE. The FTE Rate may be changed by Liquidia annually, upon notice to GSK and inclusion of the modified FTE Rate in the budget for the applicable Inhaled Plan, commencing on January 1, 2014 to reflect any year-to-year percentage increase or decrease from the Effective Date as reflected in the United States Consumer Price Index – All Urban Consumers, as published by the United States Department of Labor, Bureau of Statistics.

1.51 **"General Biological Effects"** means biological effect(s) that are not solely applicable within the Inhaled Field or vaccines applications and that result from either (a) the shape and/or uniformity of size of particles contained within PRINT Material or (b) the particle surface characteristics, particle modulus, and/or particle charge, only if and to the extent biological effect(s) are due to the association of such characteristics with the shape and/or uniformity of size of particles contained within PRINT Material, and cannot be achieved with a technology other than PRINT. For clarity, General Biological Effects does not include biological effects attributable to (i) components of PRINT Materials other than the particles themselves, such as excipients and polymers, or (ii) the overall formulation of the composition of particles comprising PRINT Materials.

1.52 **"Generic Product"** means, with respect to a particular Product in a particular regulatory jurisdiction, any pharmaceutical product that (a) contains substantially the same composition of active ingredients and particles as contained in such Product, in the same pharmaceutical form as the Product; (b) has obtained regulatory approval in such regulatory jurisdiction on expedited or abbreviated basis in a manner that relied on or incorporated data submitted by GSK, its Affiliates or sublicensees; and (c) is sold in such regulatory jurisdiction by a Third Party that is not a sublicensee of GSK or its Affiliates and did not purchase such product in a chain of distribution that included any of GSK, its Affiliates or sublicensees.

1.53 **"GLP"** means the then-current good laboratory practice standards promulgated or endorsed by the FDA as defined in 21 C.F.R. Part 58, and comparable regulatory standards promulgated by the EMA or other applicable Regulatory Authority, as they may be updated from time to time, including applicable quality guidelines promulgated under the ICH.

1.54 **"GMP"** means the then-current good manufacturing practice standards promulgated or endorsed by the FDA as defined in 21 C.F.R. Parts 210 and 211, as may be amended from time to time, or any successor thereto and foreign equivalents thereof.

1.55 **"Governmental Authority"** means any multi-national, federal, state, local, municipal, provincial or other governmental authority of any nature (including any governmental division, prefecture, subdivision, department, agency, bureau, branch, office, commission, council, court or other tribunal).

1.56 **"GSK Bio"** means GlaxoSmithKline Biologicals S.A., a company registered in Belgium under number RPM Nivelles — BE — 0440 872 918 and having its principal place of business at 89, Rue de l' Institut, 1330 Rixensart, Belgium.

1.57 **"GSK Bio Alliance Manager"** has the meaning set forth in Section 2.3.

1.58 **"GSK Collaboration Know-How"** has the meaning set forth in Section 11.3(b).

1.59 **"GSK Indemnitees"** has the meaning set forth in Section 13.1.

1.60 **"GSK Know-How"** means all (a) Know-How that is (i) Controlled by GSK or its Affiliates as of the Effective Date or during the Inhaled Collaboration Term which may include GSK Collaboration Know-How, and (ii) necessary or useful for Liquidia to carry out its obligations under the Inhaled Plan, and (b) PRINT Improvements.

1.61 **"GSK Materials"** means any and all materials selected by GSK, its Affiliates or sublicenses to research, develop and/or commercialize using or in connection with PRINT or PRINT Material, including compounds, active pharmaceutical ingredients, drug products, devices, biological materials, Antigens, immunostimulants, reagents or the like, and any modifications or derivatives thereof, whether or not such material is proprietary to GSK, its Affiliates or sublicensees.

1.62 **"GSK Patents"** means any Patent that (a) is Controlled by GSK or its Affiliates as of the Effective Date or during the Inhaled Collaboration Term and (b) would be infringed by Liquidia's performance of its obligations under the Inhaled Plan, absent the license granted hereunder.

1.63 **"GSK Respiratory Technology"** has the meaning set forth in Section 15.5(a)(i)(A).

1.64 **"GSK Technology"** means GSK Know-How and GSK Patents.

1.65 **"GSK Withholding Tax Action"** has the meaning set forth in Section 10.11(c).

1.66 **"ICC"** has the meaning set forth in Section 16.4.

1.67 **"ICH"** means International Conference on Harmonisation.

1.68 **"Indemnified Party"** has the meaning set forth in Section 13.3.

1.69 **"Indemnifying Party"** has the meaning set forth in Section 13.3.

1.70 **"Inhaled Collaboration"** has the meaning set forth in Section 3.1.

1.71 **"Inhaled Collaboration Term"** has the meaning set forth in Section 3.3(a).

1.72 **"Inhaled Field"** means the treatment of any human disease or condition in pulmonary tissues or cells, the brain or any other extra-pulmonary tissues, in each case via the inhaled route topically via the lung or nasal mucosa, but excludes prophylactic or therapeutic Vaccine. For clarity, the Inhaled Field includes the Liquidia Respiratory Field.

1.73 **"Inhaled License"** has the meaning set forth in Section 5.2(b).

1.74 **"Inhaled Option"** has the meaning set forth in Section 4.2(a).

1.75 **"Inhaled Option Notice"** has the meaning set forth in Section 4.2(b).

1.76 **"Inhaled Option Period"** has the meaning set forth in Section 4.2(b).

1.77 **"Inhaled Plan"** has the meaning set forth in Section 3.2.

1.78 **"Inhaled Product"** means (a) any drug product that is regulated under the FD&C Act on a prescription basis (or, with respect to drug products sold in jurisdictions other than the United States, that would be regulated under the FD&C Act on a prescription basis if sold in the United States) or (b) any drug product initially made available on a prescription basis as an Inhaled Product under this Agreement but later made available on a non-prescription or over-the-counter basis, in each case of (a) and (b) that comprises or contains PRINT Material and GSK Material in its final finished form for sale for use in humans in the Inhaled Field. For clarity, Inhaled Product excludes Research Materials, Research Products and any product that is intended for animal health use, diagnostic use or consumer health use.

1.79 **"JIRC Term"** has the meaning set forth in Section 2.2.

1.80 **"Joint Inhaled Collaboration Know-How"** has the meaning set forth in Section 11.4(a).

1.81 **"Joint Inhaled Collaboration Patents"** has the meaning set forth in Section 11.4(c).

1.82 **"Joint Inhaled Research Committee"** or **"JIRC"** has the meaning set forth in Section 2.2.

1.83 **"Joint Patent Committee"** or **"JPC"** has the meaning set forth in Section 2.4.

1.84 **"Joint Steering Committee"** or **"JSC"** means the committee formed by the Parties as described in Section 2.1.

1.85 **"Joint Vaccine Collaboration Know-How"** has the meaning set forth in the Vaccine Collaboration Agreement.

1.86 **"Joint Vaccine Collaboration Patents"** has the meaning set forth in the Vaccine Collaboration Agreement.

1.87 **"Joint Vaccines Research Committee"** or **"JVRC"** means the research committee established under Section 2.2 of the Vaccines Collaboration Agreement.

1.88 **"JSC Term"** has the meaning set forth in Section 2.1.

1.89 **"Know-How"** means any and all data and test data (including pharmacological, biological, chemical, biochemical, clinical test data and data resulting from non-clinical studies), results, inventions (whether or not patentable), technology, business or financial information or information of any other type, in any tangible or intangible form, including know-how, trade secrets, practices, techniques, methods, processes, developments, specifications, formulations, formulae, materials or compositions of matter of any type or kind (patentable or otherwise), software, algorithms, and expertise.

1.90 **"Laws"** means all laws, statutes, rules, regulations, ordinances and other pronouncements having the effect of law of any federal, national, multinational, state, provincial, county, city or other political subdivision.

1.91 **"Legal Requirement"** has the meaning set forth in Section 14.4(c).

1.92 **"Liquidia Collaboration Know-How"** has the meaning set forth in Section 11.3(a).

1.93 **"Liquidia Know-How"** means all Know-How that is (a) Controlled by Liquidia or its Affiliates as of the Effective Date or at any time during the Term, whether such Know-How arises under the Collaboration Program as Liquidia Collaboration Know-How or arises outside of the Collaboration Program (for example, arising in connection with the work conducted by UNC under the UNC Research Agreement), and (b) necessary or reasonably useful for the making, having made, using, selling, offering for sale and import of the Liquidia Respiratory Product, the Research Products or the Inhaled Products, as applicable. For clarity, Liquidia Know-How excludes Joint Inhaled Collaboration Know-How. The use of "Affiliate" in this definition shall exclude any Third Party that becomes an Affiliate of Liquidia in connection with a Change of Control of Liquidia after the Effective Date.

1.94 **"Liquidia Indemnitees"** has the meaning set forth in Section 13.2.

1.95 **"Liquidia Patents"** means any Patent that (a) is Controlled by Liquidia or its Affiliates as of the Effective Date or at any time during the Term, and (b) would be infringed by the making, having made, using, selling, offering for sale or import of the Liquidia Respiratory Product, Research Products or the Inhaled Products, as applicable, absent the license granted hereunder to GSK upon GSK's exercise of the Liquidia Respiratory Option or Inhaled Option, as applicable. For clarity, Liquidia Patents exclude Joint Inhaled Collaboration Patents, but include

Patents covering or claiming Liquidia Know-How. The Liquidia Patents existing as of the Effective Date include those set forth in Exhibit A attached hereto. The use of "Affiliate" in this definition shall exclude any Third Party that becomes an Affiliate of Liquidia in connection with a Change of Control of Liquidia after the Effective Date.

1.96 **"Liquidia Respiratory Field"** means the treatment or prevention of pulmonary hypertension.

1.97 **"Liquidia Respiratory License"** has the meaning set forth in Section 5.2(a).

1.98 **"Liquidia Respiratory Option"** has the meaning set forth in Section 4.1(b).

1.99 **"Liquidia Respiratory Product"** means the dry powder inhaled Treprostinil product known as NT-001 or a substitute non-proprietary compound directed to the treatment or prevention of pulmonary hypertension, which product is developed by Liquidia using PRINT. For clarity, any compound substitution shall become fixed as of the date GSK exercises the Liquidia Respiratory Option.

1.100 **"Liquidia Retained Product"** has the meaning set forth in the Vaccine Collaboration Agreement.

1.101 **"Liquidia Technology"** means the Liquidia Know-How and Liquidia Patents. For purposes of clarity, Liquidia Technology includes Know-How and Patents covering or claiming any and all inventions, discoveries and other subject matter conceived or reduced to practice or otherwise discovered by or on behalf of Liquidia in connection with development of the Liquidia Respiratory Product, the Excluded Applications, or any vaccine product in the Retained Disease Field, that are related to PRINT and have broad applicability to other products, but excludes Know-How and Patents covering or claiming any and all inventions, discoveries and other subject matter conceived or reduced to practice or otherwise discovered by or on behalf of Liquidia in connection with development of the Liquidia Respiratory Product, the Excluded Applications, or any vaccine product in the Retained Disease Field, that are specific solely to the Liquidia Respiratory Product, the Excluded Applications, or any vaccine product in the Retained Disease Field, as applicable, that do not have broad applicability to other products, and therefore, are not necessary for the making, having made, using, selling, offering for sale and importing of other products (including Research Products and Inhaled Products).

1.102 **"Losses"** has the meaning set forth in Section 13.1.

1.103 "**Major EU Markets**" means France, Germany, Italy, Spain, and the United Kingdom.

1.104 "Marketing Authorization Application" or **"MAA"** means an application to the appropriate Regulatory Authority for approval to market a Product (but excluding pricing approval) in any particular jurisdiction, including an NDA or BLA in the U.S.

1.105 "Material Receiving Party" has the meaning set forth in Section 3.5(c)(i).

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

1.106 "Materials" has the meaning set forth in Section 3.5(c)(i).

1.107 "NDA" means a New Drug Application (as more fully described in 21 C.F.R. 314.50 et seq. or its successor regulation) and all amendments and supplements thereto.

1.108 "Negotiation Period" has the meaning set forth in Section 4.3.

1.109 "Net Sales" means, with respect to a Product, the sales figure publicly reported by GSK on a calendar quarterly basis as calculated using International Financial Reporting Standards (IFRS) applied in a consistent basis. An example of the calculation method used as of the Effective Date of this Agreement is listed in Schedule 1.109; provided, that such example is provided for illustrative purposes only and may not be the same calculation method used by GSK upon First Commercial Sale of a Product. Notwithstanding the foregoing, amounts received or invoiced by GSK, its Affiliates, or their sublicensees for the sale of such Product among GSK, its Affiliates or their respective sublicensees for resale shall not be included in the computation of Net Sales hereunder. With respect to any sale of any Product in a given country for any substantive consideration other than monetary consideration on arm's length terms (which has the effect of reducing the invoiced amount below what it would have been in the absence of such non-monetary consideration), for the purposes of calculating the Net Sales under this Agreement, such Product shall be deemed to be sold exclusively for money at the average Net Sales price charged to Third Parties for cash sales in such country during the applicable reporting period (or if there were only de minimus cash sales in such country, at the fair market value as determined by comparable markets). Adjustments may be made to the calculation of Net Sales as required by changes in IFRS as necessary in the future, or as appropriate to reflect changes to GSK's accounting rules (e.g. change from IFRS to UK GAAP).

If a Product is sold as part of a Combination (**"Combination"** means a Product formulated in combination with one or more already marketed product(s) derived independently of this Agreement) and such Product and other products contained in the Combination are sold separately, then Net Sales for purposes of determining royalties on the Product in the Combination shall be calculated by multiplying Net Sales by the fraction A/(A+B), where A is the [***] and B is the [***]; provided, that Net Sales for purpose of determining royalties on the Product in the Combination in accordance with this paragraph shall be no less than [***] percent ([***]%) of the Net Sales of the Combination.

If the Product in a Combination is not sold separately or if the average wholesale acquisition cost of the Product in the Combination is not available and the Parties are unable to agree on an alternative arrangement, then Net Sales for purposes of determining royalties on the Product in the Combination shall be determined by multiplying Net Sales of the Combination by a fraction X/Y, wherein X is the number of [***], and Y is the [***]; provided, that Net Sales for purpose of determining royalties on the Product in the Combination in accordance with this paragraph shall be no less than [***]percent ([***]%) of the Net Sales of the Combination. For illustrative purposes with respect to this paragraph, if GSK sells a Combination comprising (a) an already marketed product derived independently of this Agreement containing [***] and (b) a Product containing [***], the Net Sales of the Combination shall be multiplied by [***], provided that the Net Sales attributable to the Product in the Combination shall be no less than [***] percent ([***]%) of the Net Sales of the Combination.

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

1.110 "New Therapeutic Product" means any Inhaled Product or Research Product that is not a Rescue Therapeutic Product.

1.111 "Non-Governmental Organization" means any non-profit entity or voluntary citizens' group which is organized on a local, national or international level, for example see www.ngo.org, including BMGF.

1.112 "Party" or **"Parties"** has the meaning set forth in the preamble.

1.113 "Patents" means (a) pending patent applications, issued patents, utility models and designs; (b) reissues, substitutions, confirmations, registrations, validations, re-examinations, additions, continuations, continued prosecution applications, continuations-in-part, or divisions of or to any of the foregoing; and (c) extensions, renewals or restorations of any of the foregoing by existing or future extension, renewal or restoration mechanisms, including supplementary protection certificates or the equivalent thereof.

1.114 "Phase I Clinical Trial" means a Clinical Trial of a product in human subjects with the endpoint of determining initial tolerance, safety, immunogenicity or pharmacokinetic information in single dose, single ascending dose, multiple dose and/or multiple ascending dose regimens, which is prospectively designed to generate sufficient data (if successful) to commence a Phase II Clinical Study of such product, as further defined in 21 C.F.R. 312.21(a), as amended from time to time, or the corresponding foreign regulations.

1.115 "Phase II Clinical Trial" means a Clinical Trial of a product in human patients or subjects to determine immunogenicity, initial efficacy (if applicable) and dose range and/or regimen finding before commencing a Phase III Clinical Trial, as further defined in 21 C.F.R. 312.21(b), as amended from time to time, or the corresponding foreign regulations.

1.116 "Phase III Clinical Trial" means a pivotal Clinical Trial (whether or not denominated a "Phase III") of a product in human patients or subjects with a defined dose or a set of defined doses designed to ascertain efficacy and safety of such product for the purpose of enabling the preparation and submission of MAA to the competent Regulatory Authorities, as further defined in 21 C.F.R. 312.21(c), as amended from time to time, or the corresponding foreign regulations.

1.117 "PRINT" means Liquidia's proprietary micro or nano-fabrication process for producing particles and particles on a film of a predetermined size, shape and composition (generally known as PRINT® (Particle Replication In Nonwetting Template)), including all processes, systems and materials (including using molds but excluding making molds) for producing such particles and all Liquidia proprietary substances used in making any such particles. For the avoidance of doubt, PRINT does not include the particles or the particle formulations or PRINT Material generated using PRINT, or the PRINT Tooling.

1.118 "PRINT DMF" has the meaning set forth in Section 7.1.

1.119 "PRINT Improvements" means (a) any improvements or modifications to General Biological Effects; and/or (b) any Know-How to the extent related to PRINT or PRINT

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

Tooling made or generated using PRINT or PRINT Tooling in connection with the manufacturing of Research Materials, Liquidia Respiratory Product, Research Products or Inhaled Products, in each case of (a) and (b) made by GSK, its Affiliates or sublicensees (for clarity, including Third Party manufacturer) under this Agreement but outside the Inhaled Plan, as well as any Patents claiming or covering any of the foregoing, in all cases, Controlled by GSK, its Affiliates, sublicensees or Third Party manufacturers.

1.120 "PRINT Material" means a particle or a group of particles that is developed, manufactured or otherwise produced using PRINT and PRINT Tooling or otherwise developed, manufactured or produced using any Liquidia Technology whether such particle or group of particles is developed, manufactured or produced by Liquidia or GSK, or their Affiliates or sublicensees. For clarity, "particle(s)" may refer to the composition of the particles, including excipients that prevent degradation or provide stabilization to the particle(s), but specifically excludes and is not meant to encompass, any Research Products, Products or Research Materials.

1.121 "PRINT Tooling" means the Liquidia proprietary information, trade secrets, materials and substrates for fabricating the patterned drums (including the patterned drums themselves) and molds (excluding the molds themselves) that enable PRINT. For the avoidance of doubt, PRINT Tooling does not include the particles or any particle formulation, PRINT Material or PRINT.

1.122 "Product" means either an Inhaled Product(s) or the Liquidia Respiratory Product, as the context requires.

1.123 "Product Information" has the meaning set forth in Section 12.2(j).

1.124 "Product Infringement" has the meaning set forth in Section 11.6(a).

1.125 "Product Marks" has the meaning set forth in Section 11.9.

1.126 "Public Statement" has the meaning set forth in Section 14.4(c).

1.127 "Purpose" has the meaning set forth in Section 3.5(c)(i).

1.128 "Regulatory Approval" means all approvals (including MAA approval and supplements and amendments thereto and any required pricing approval), licenses, registrations or authorizations of any Governmental Authority necessary for the development or commercialization of the Liquidia Respiratory Product, a Research Product or Inhaled Product, including clinical testing, manufacture, distribution, use or sale of such Liquidia Respiratory Product, Research Product or Inhaled Product in a given regulatory jurisdiction.

1.129 "Regulatory Authority" means, in a particular country or jurisdiction, any applicable Governmental Authority involved in granting Regulatory Approval in such country or jurisdiction.

1.130 "Regulatory Exclusivity" means any exclusive marketing rights or data exclusivity rights conferred by any Governmental Authority with respect to a Product in a

country or jurisdiction, other than a Patent right, including orphan drug exclusivity, pediatric exclusivity, rights conferred in the U.S. under the Hatch-Waxman Act or the Biologics Price Competition and Innovation Act of 2009, or in the EU under Directive 2001/83/EC, or rights similar thereto in other countries or regulatory jurisdictions.

1.131 "Regulatory Materials" means regulatory applications, submissions, notifications, communications, correspondence, registrations, MAAs, Regulatory Approvals and/or other filings made to, received from or otherwise conducted with a Regulatory Authority in connection with the development or commercialization of a Research Product or Product in a particular country or jurisdiction.

1.132 "Remedial Action" has the meaning set forth in Section 7.5.

1.133 "Rescue Therapeutic Product" means any Inhaled Product or Research Product that contains GSK Material for which GSK had previously terminated development activities due to material safety, efficacy or formulation issues and for which development activities were reinitiated following the application of Liquidia Technology and/or Collaboration Know-How if PRINT or PRINT Materials are solely capable of solving such material safety, efficacy or formulation issues. Evidence of GSK's decision to terminate development as described above with respect to clinical stage assets will be as set forth in the minutes of the applicable GSK governance committee responsible for making the decision, and with respect to pre-clinical assets will be as set forth in GSK's iPLAN system.

1.134 "Research Materials" means any product that comprises or contains PRINT Material and GSK Material for use in the Inhaled Plan.

1.135 "Research Product" means any (a) product that is or is planned to be regulated under the FD&C Act on a prescription basis (or, with respect to drug products sold in jurisdictions other than the United States, that would be regulated under the FD&C Act on a prescription basis if sold in the United States) or (b) any drug product initially made available on a prescription basis as an Inhaled Product under this Agreement but later made available on a non-prescription or over-the-counter basis, in either case, that comprises or contains PRINT Material and GSK Material for use in Clinical Trials and other development activities in the Inhaled Field under this Agreement. For clarity, Research Product excludes Research Materials, Inhaled Products and any product that is intended for animal health use, diagnostic use or consumer health use.

1.136 "Respiratory Option Notice" has the meaning set forth in Section 4.1(c).

1.137 "Retained Field" has the meaning set forth in Section 5.9.

1.138 "Retained Disease Field" has the meaning set forth in the Vaccine Collaboration Agreement.

1.139 "Reversion Royalty" has the meaning set forth in Section 15.5(a)(i)(B).

1.140 "ROFN Notice" has the meaning set forth in Section 4.3.

1.141 "Royalty Purchaser" has the meaning set forth in Section 17.5(c).

1.142 "Royalty Term" has the meaning set forth in Section 10.5(b).

1.143 "Term" has the meaning set forth in Section 15.1.

1.144 "Territory" means the whole world.

1.145 "Third Party" means any entity other than Liquidia or GSK or their respective Affiliates.

1.146 "Third Party Agreements" means the agreements listed on Exhibit B.

1.147 "Transfer Record" has the meaning set forth in Section 3.5(c)(i).

1.148 "Transferring Party" has the meaning set forth in Section 3.5(c)(i).

1.149 "UNC License Agreement" means the Amended and Restated License Agreement between Liquidia and The University of North Carolina at Chapel Hill (**"UNC"**), dated December 15, 2008, as amended.

1.150 "UNC Material Transfer Agreement" means the Material Transfer Agreement between Liquidia and UNC, dated August 16, 2007, as amended.

1.151 "UNC Research Agreement" means the Supported Research Agreement between Liquidia and UNC, dated September 1, 2005, as amended.

1.152 "University Inventions" has the meaning set forth in Section 8(a) of the UNC Research Agreement.

1.153 "U.S." means the United States of America, including all possessions and territories thereof.

1.154 "**Vaccine**" means a biological product containing an Antigen(s) that induces an Antigen-specific immune response intended to prevent or treat the target disease or condition after administration to a human through any route of delivery, including intramuscular, intradermal, sublingual, intranasal or oral delivery, but excluding delivery to the lung.

1.155 "Vaccine Collaboration" has the meaning set forth in the Vaccine Collaboration and Option Agreement, dated June 15, 2012, between Liquidia and GSK Bio (the **"Vaccine Collaboration Agreement"**).

1.156 **"Vaccine Collaboration Term"** has the meaning set forth in the Vaccine Collaboration Agreement.

1.157 **"Vaccine Option"** has the meaning set forth in the Vaccine Collaboration Agreement.

1.158 **"Vaccine Option Period"** has the meaning set forth in the Vaccine Collaboration Agreement.

1.159 **"Vaccine Plan"** has the meaning set forth in the Vaccine Collaboration Agreement.

1.160 **"Valid Claim"** means a claim of any issued and unexpired Patent included within Liquidia Patents, Joint Inhaled Collaboration Patents or Joint Vaccine Collaboration Patents, which claim has not been revoked, held invalid or unenforceable by a patent office, court or other governmental agency of competent jurisdiction in a final and non-appealable judgment (or judgment from which no appeal was taken within the allowable time period) and which claim has not been disclaimed, denied or admitted to be invalid or unenforceable through reissue, re-examination or disclaimer or otherwise.

1.161 **Interpretation.** In this Agreement, unless otherwise specified:

(a) "includes" and "including" shall mean respectively includes without limitation and including without limitation;

(b) words denoting the singular shall include the plural and vice versa and words denoting any gender shall include all genders;

(c) words such as "herein", "hereof", and "hereunder" refer to this Agreement as a whole and not merely to the particular provision in which such words appear; and

(d) the Exhibits and other attachments form part of the operative provision of this Agreement and references to this Agreement shall include references to the Exhibits and attachments.

ARTICLE 2
GOVERNANCE

2.1 **Joint Steering Committee**. Within fifteen (15) days after the Effective Date, the Parties shall, together with GSK Bio (collectively referred to as the **"Committee Parties"**), establish a joint steering committee (the "**Joint Steering Committee**" or "**JSC**") to oversee the Collaboration Program. Each Committee Party agrees to keep the JSC informed of its progress and activities under the Collaboration Program as described in this Section 2.1 and Section 2.1 of the Vaccine Collaboration Agreement. The JSC shall cease to meet and its role under this Agreement shall end upon the later to occur of either the expiration of the Inhaled Collaboration Term or the Vaccine Collaboration Term (the **"JSC Term"**).

(a) Membership. The JSC shall consist of two (2) representatives of each of GSK and GSK Bio, and four (4) representatives of Liquidia, in each case that have sufficient seniority to make decisions arising within the scope of the JSC's responsibilities. Each Committee Party may replace any or all of its representatives on the JSC at any time upon written notice to the other Committee Parties in accordance with Section 17.3. Each Committee Party may, subject to the other Committee Parties' prior approval, invite non-member

representatives of such Committee Party to attend meetings of the JSC as non-voting participants, subject to the confidentiality obligations of Article 14. The Committee Parties shall designate a chairperson (each, a **"Chairperson"**) to oversee the operation of the JSC, each such Chairperson to serve a twelve (12) month term. The right to name the Chairperson shall alternate between the Committee Parties with GSK Bio designating the first such Chairperson. Chairpersons shall have no additional powers or rights beyond those held by other JSC members.

(b) Meetings. The first scheduled meeting of the JSC shall be held no later than forty-five (45) days after the Effective Date. Thereafter, prior to the expiration of the JSC Term, the JSC shall meet at least once each calendar quarter, and more or less frequently as the Committee Parties mutually deem appropriate, on such dates and at such places and times as provided herein or as the Committee Parties shall agree. Any Committee Party may also call a special meeting of the JSC by at least ten (10) Business Days prior written notice to the other Committee Parties in the event such Committee Party reasonably believes that a significant matter must be addressed prior to the next regularly scheduled meeting, and such Committee Party shall provide the other Committee Parties with materials reasonably adequate to enable an informed decision on such matter. Meetings of the JSC that are held in person shall alternate between the offices of the Committee Parties, or such other location as the Committee Parties may agree. The members of the JSC also may meet or be polled or consulted from time to time by means of telecommunications, video conferences, electronic mail or correspondence, as deemed necessary or appropriate. Prior to any JSC meeting, the Chairperson shall prepare and circulate an agenda for such meeting; provided, however, that any Committee Party may propose additional topics to be included on such agenda, either prior to or in the course of such meeting. Meetings of the JSC shall be effective only if at least two (2) representatives of each Committee Party are present or participating in such meeting. Each Committee Party will bear all expenses it incurs in regard to participating in all meetings of the JSC, including all travel and living expenses.

(c) Minutes. On an alternating basis among the Committee Parties, during the same 12 month term as each Chairperson, an Alliance Manager from a Committee Party other than the Committee Party of the Chairperson shall be responsible for preparing and circulating minutes of each meeting of the JSC, setting forth, *inter alia*, an overview of the discussions at the meeting and a list of any actions, decisions or determinations approved by the JSC and a list of any issues to be resolved by the Executive Officers pursuant to Section 2.1(e)(i). Such minutes shall be effective only after approved by all Committee Parties in writing. With the sole exception of specific items of the meeting minutes to which the members cannot agree and that are escalated to the Executive Officers as provided in Section 2.1(e)(i), definitive minutes of all JSC meetings shall be finalized no later than thirty (30) days after the meeting to which the minutes pertain.

(d) Responsibilities. The JSC shall serve as a forum to share Know-How and learnings from each of the Inhaled Collaboration and Vaccines Collaboration. Specifically, the JSC shall:

(i) provide oversight over the Collaboration Program and facilitate communication and discussion between the Committee Parties with respect to the Collaboration Program;

(ii) ensure that each of the JVRC and JIRC be kept informed of data and Know-How generated under each of the Inhaled Plan and Vaccines Plan, respectively, that may have broad applicability or usefulness to both the Vaccines Plan and Inhaled Plan;

(iii) review and approve amendments to the Inhaled Plan and Vaccines Plan and all associated budgets;

(iv) discuss and resolve any disputes relating to the Collaboration Program, including any disputed matter referred from the JVRC or JIRC;

(v) from time to time but no more often than quarterly during the JSC Term, in consultation with the JIRC, JVRC and JPC, discuss research that has been conducted by UNC and Consultant under the UNC Research Agreement, the UNC Material Transfer Agreement and the Consulting Agreement in the Liquidia Respiratory Field, the Inhaled Field or Co-Delivery Vaccine Field, as well as outside the Liquidia Respiratory Field, the Inhaled Field or Co-Delivery Vaccine Field that is expected to relate to General Biological Effects, and review results, University Inventions and other inventions generated by all such research. Notwithstanding the foregoing, discussion of research shall occur more often than quarterly as required for GSK to review such research reasonably prior to publication thereof;

(vi) from time to time but no more often than quarterly during the JSC Term, in consultation with the JIRC, JVRC and JPC, review and approve any research to be conducted by Third Parties under agreements between Third Parties and UNC (which agreements may or may not include Liquidia as a party) using PRINT or PRINT Materials supplied by Liquidia in the Liquidia Respiratory Field, the Inhaled Field or Co-Delivery Vaccine Field, including the intellectual property provisions of such agreements, in accordance with Section 5.7;

(vii) from time to time but no more often than quarterly during the JSC Term, in consultation with the JIRC, JVRC and JPC, discuss research that has been conducted by Third Parties under agreements between Third Parties and UNC (which agreements may or may not include Liquidia as a party) using PRINT or PRINT Materials supplied by Liquidia outside the Liquidia Respiratory Field, the Inhaled Field or Co-Delivery Vaccine Field that is expected to relate to General Biological Effects, and review results and inventions generated by all such research, to the extent Liquidia becomes aware of such research results. Notwithstanding the foregoing, discussion of research shall occur more often than quarterly as required for GSK to review such research reasonably prior to publication thereof;

(viii) review and discuss manufacturing and supply requirements and obligations related to PRINT Materials, Research Materials and Research Products. Such discussion shall include matters related to any anticipated delay in manufacturing and supply of PRINT Materials and Research Materials, and the impact of such delay on the conduct of the Inhaled Plan or Vaccine Plan. The Parties shall also discuss whether such delay shall be addressed by an extension of the Inhaled Collaboration Term or Vaccine Collaboration Term or a manufacturing technology transfer as described in Section 5.2(c)(i); provided, that the technology transfer described in Section 5.2(c)(i) shall occur only if the Parties agree that such

transfer would be more likely to decrease the delay of conducting the Inhaled Plan or Vaccine Plan than allowing Liquidia to cure such delay in supply;

(ix) track expenses against agreed budgets as set forth in the Vaccine Plan and Inhaled Plan; and

(x) perform such other functions as agreed by the Parties in writing.

(e) Decision Making; Governance Principles.

(i) All decisions of the JSC shall be made by unanimous vote, with Liquidia's representatives collectively having one (1) vote and representatives of both GSK and GSK Bio collectively having one (1) vote. The JSC shall strive to seek consensus in its actions and decision making process. If after reasonable discussion and good faith consideration of each Party's view on a particular matter before the JSC, the representatives on the JSC cannot reach a unanimous decision on such matter within thirty (30) calendar days after such matter was raised to the JSC for resolution, then such disagreement shall be referred to the Executive Officers for resolution. If the Executive Officers cannot resolve such matter within thirty (30) calendar days after such matter has been referred to them, then (A) Liquidia's Executive Officer shall have the right to decide all matters relating to PRINT Tooling and the operational aspects of PRINT under this Agreement and the Development Supply Agreement; provided, that Liquidia's Executive Officer shall not have the right to decide matters related to GSK's choice of composition, size, and/or shape of the PRINT Material, quality issues of the PRINT Material, Research Materials or Research Products, or the quality or timing of delivery of such PRINT Material, Research Materials or Research Products (including a decrease in Liquidia's supply obligations), or matters related to the required manufacturing and scale-up deliverables set forth in the Inhaled Plan or Vaccines Plan, and (B) GSK's Executive Officer and/or GSK Bio's Executive Officer, as applicable to the matter under dispute, shall have the right to decide all other matters, in each case consistent with the terms of this Agreement and in good faith. Notwithstanding the foregoing, (1) unless otherwise agreed by the Parties, disputes relating to non-disclosure, non-use and maintenance of Confidential Information and determinations of material breach or interpretation of this Agreement shall not be subject to GSK and/or GSK Bio final decision-making authority and may be escalated to the dispute resolution process set forth in Article 16 and (2) disputes involving intellectual property issues within the purview of the JPC shall be resolved as provided in Section 2.4.

(ii) Each Party shall at all times exercise its final decision-making authority using reasonable scientific and business judgment, in compliance with applicable Laws, and in accordance with its obligations to use Commercially Reasonable Efforts. To the extent that GSK or GSK Bio, as the case may be, in exercising its final decision-making authority in accordance with the foregoing principles, determines that amendments are required to be made to the Inhaled Plan and/or Vaccine Plan, and such amendments would materially increase the scope of activities to be performed by Liquidia, then the Parties shall discuss such additional activities in good faith, and Liquidia will use Commercially Reasonable Efforts to accommodate such additional activities. If additional material financial or other resources are required to fulfil the increased scope of activities requested by GSK or GSK Bio, including funding for additional scale up or capital expenditures for Liquidia's manufacturing facilities,

then the Parties shall discuss the terms of sharing such additional financial resources, including the ability to credit GSK's additional scale up or capital expenditure costs against future manufacturing costs. If the Parties cannot agree on sharing of costs, then Liquidia shall not be obligated to perform the increased scope of activities requested by GSK or GSK Bio and GSK or GSK Bio shall not be obligated to provide additional funding for such increased scope of activities. For the avoidance of doubt, nothing herein is intended to prevent the JSC or GSK or GSK Bio (to the extent GSK or GSK Bio has final decision-making authority hereunder), as applicable, from (A) making non-material amendments to the Inhaled Plan or Vaccines Plan that do not impose on Liquidia additional material obligations, including financial obligations, or (B) making material amendments that are not related to the supply of PRINT Material, do not require a technology transfer of PRINT or PRINT Tooling to GSK or a Third Party manufacturer, and for which GSK or GSK Bio assumes responsibility and cost.

2.2 Joint Inhaled Research Committee. Within fifteen (15) days after the Effective Date, the Parties shall establish a joint research committee (the "**Joint Inhaled Research Committee**" or "**JIRC**") to oversee the day-to-day implementation and operational aspects of the Inhaled Collaboration. Each Party agrees to keep the JIRC informed of its progress and activities under the Inhaled Collaboration. The JIRC shall cease to meet and its role under this Agreement shall end upon the expiration of the Inhaled Collaboration Term (the **"JIRC Term"**).

(a) Membership. The JIRC shall consist of three (3) Liquidia personnel and three (3) GSK therapeutic area experts or platform technology experts of sufficient seniority to make decisions arising within the scope of the JIRC's responsibilities. Each Party may replace any or all of its representatives on the JIRC at any time upon written notice to the other Party in accordance with Section 17.3. Each Party may, subject to the other Party's prior approval, invite non-member representatives of such Party to attend meetings of the JIRC as non-voting participants, subject to the confidentiality obligations of Article 14.

(b) Meetings. The first scheduled meeting of the JIRC shall be held no later than forty-five (45) days after the Effective Date. Thereafter, prior to the expiration of the JIRC Term, the JIRC shall meet at least once per calendar month, and more or less frequently as the Parties mutually deem appropriate, on such dates and at such places and times as provided herein or as the Parties shall agree. Either Party may also call a special meeting of the JIRC by at least ten (10) Business Days prior written notice to the other Party in the event such Party reasonably believes that a significant matter must be addressed prior to the next regularly scheduled meeting, and such Party shall provide the other Party with materials reasonably adequate to enable an informed decision on such matter. Meetings of the JIRC that are held in person shall alternate between the offices of the Parties, or such other location as the Parties may agree. The members of the JIRC also may meet or be polled or consulted from time to time by means of telecommunications, video conferences, electronic mail or correspondence, as deemed necessary or appropriate. Meetings of the JIRC shall be effective only if at least two (2) representatives of each Party are present or participating in such meeting. Each Party will bear all expenses it incurs in regard to participating in all meetings of the JIRC, including all travel and living expenses.

(c) Minutes. The JIRC members shall designate a secretary at each meeting (which may be the Alliance Manager if the Alliance Manager attends such meeting) who shall be

responsible for keeping minutes that record all decisions and all actions recommended or taken in reasonable detail. Such minutes shall be effective only after approved by the Parties in writing. With the sole exception of specific items of the meeting minutes to which the members cannot agree and that are escalated to the JSC as provided in Section 2.2(e), definitive minutes of all JIRC meetings shall be finalized no later than fifteen (15) days after the meeting to which the minutes pertain.

(d) Responsibilities. The JIRC shall:

(i) oversee the implementation of the Inhaled Plan in accordance with the applicable budget;

(ii) review and discuss Know-How generated by the Parties in the course of performing the Inhaled Plan, and report all Know-How, data and results to the JSC on a quarterly basis (or more frequently as requested by the JSC);

(iii) consult with the JSC and JPC on the matters set forth in Sections 2.1(d)(v), (vi) and (vii); and

(iv) prepare proposed amendments to the Inhaled Plan and budget and submit such amendments to the JSC for review and approval.

(e) Decision Making. All decisions of the JIRC shall be made by unanimous vote, with each Party's representatives collectively having one (1) vote. The JIRC shall strive to seek consensus in its actions and decision making process. If after reasonable discussion and good faith consideration of each Party's view on a particular matter before the JIRC, the representatives on the JIRC cannot reach a unanimous decision on such matter within ten (10) calendar days after such matter was raised for resolution by the JIRC, then either Party may, by written notice to the other, have such issue submitted to the JSC for resolution in accordance with Section 2.1.

2.3 Alliance Managers. Within fifteen (15) days after the Effective Date, each Party shall appoint and notify the other Party of the identity of a representative having the appropriate qualifications, including a general understanding of pharmaceutical research and development issues, to act as its alliance manager under this Agreement (the "**Alliance Manager**"). The Alliance Managers shall serve as the primary contact points between the Parties and be primarily responsible for facilitating the flow of information and otherwise promoting communication, coordination and collaboration between the Parties. Each Party may replace its Alliance Manager at any time upon written notice to the other Party. The Alliance Managers shall attend each meeting of the JSC as non-voting members. In addition to the foregoing, the Parties acknowledge that GSK Bio shall appoint an alliance manager under the Vaccine Collaboration Agreement (the **"GSK Bio Alliance Manager"**); provided, that the Alliance Manager appointed by GSK hereunder shall serve as the primary point of contact for Liquidia's Alliance Manager across both this Agreement and the Vaccine Collaboration Agreement; and provided, further that the GSK Bio Alliance Manager shall attend each meeting of the JSC as a non-voting member, which attendance may be in person, or via teleconference or videoconference as appropriate and shall be responsible for facilitating any in person meetings of the JSC at the GSK Bio facilities.

2.4 Joint Patent Committee. Within fifteen (15) days after the Effective Date, the Committee Parties shall establish a joint patent committee (the "**Joint Patent Committee**" or "**JPC**"). Each Committee Party shall designate one representative to serve on the JPC. The JPC shall be responsible for discussing material Patent issues and to allow the Committee Parties to provide input to each other regarding the strategy for prosecution, maintenance, enforcement and defense of Joint Inhaled Collaboration Know-How, Joint Inhaled Collaboration Patents, Joint Vaccine Collaboration Know-How and Joint Vaccine Collaboration Patents and Liquidia Technology, including with respect to Liquidia Patents licensed to Liquidia under the UNC License Agreement as further described in Section 11.7. The JPC shall be responsible for working together to achieve a robust Patent portfolio taking into consideration the Liquidia Patents, Joint Inhaled Collaboration Patents and Joint Vaccine Collaboration Patents. In addition, the JPC shall be responsible for consulting with the JIRC, JVRC and JSC on the matters set forth in Sections 2.1(d)(v), (vi) and (vii), and determining whether any Joint Inhaled Collaboration Know-How or Joint Vaccine Collaboration Know-How is independently related to General Biological Effects and has broad applicability to therapeutic uses outside of any vaccines applications and/or the Inhaled Field. Decisions of the JPC shall be made by consensus. In the event of an unresolved dispute at the JPC, after escalation to senior patent counsels of the Committee Parties, Liquidia shall have final decision-making authority over issues related to the prosecution of Liquidia Technology, and GSK and GSK Bio collectively would have final decision-making authority over all issues related to the prosecution of the Joint Inhaled Collaboration Patents and Joint Vaccine Collaboration Patents; provided that no Committee Party shall have the right to make the final decision with respect to determining whether any Joint Inhaled Collaboration Know-How or Joint Vaccine Collaboration Know-How is independently related to General Biological Effects and has broad applicability to therapeutic uses outside of any vaccines applications and the Inhaled Field (such dispute shall be resolved pursuant to Article 16).

2.5 Advisory Council. Upon expiration of the JSC Term and exercise by GSK of the Inhaled Option, the Committee Parties shall establish an advisory council (the **"Advisory Council"**) whose primary function shall be to continue to meet as reasonably required by GSK, but not more frequently than quarterly or as otherwise agreed by the Parties, to discuss issues related to the ongoing development of Research Products by GSK and GSK Bio (in the event the Vaccines Option has been exercised in accordance with the terms of the Vaccine Collaboration Agreement), as well as manufacture of PRINT Materials and Research Products under the Development Supply Agreement by Liquidia, if applicable. For the avoidance of doubt, the Advisory Council is intended to facilitate an ongoing exchange of scientific information and data between the Parties for the benefit of and to inform future plans for, GSK's and GSK Bio's development of Research Products under this Agreement and the Vaccine Collaboration Agreement, and is not intended to serve as a decision-making committee. Further, the Development Supply Agreement shall provide for additional committees as necessary or appropriate to ensure Liquidia's cooperation with GSK with respect to any applicable assessments conducted by GSK of Liquidia or its subcontractors' manufacturing facilities and GSK's control over the applicable supply chains for the Research Products.

2.6 Limitation on Committee Power. Each of the JSC, JIRC and JPC shall only have the powers expressly assigned to it in this Article 2, in Article 2 of the Vaccine

Collaboration Agreement and elsewhere in this Agreement and shall not have the authority to: (a) modify or amend the terms and conditions of this Agreement; (b) waive either Party's compliance with the terms and conditions of under this Agreement; or (c) determine any such issue in a manner that would conflict with the terms and conditions of this Agreement.

ARTICLE 3
INHALED COLLABORATION PROGRAM

3.1 General. Subject to the terms and conditions of this Agreement, the Parties desire to establish an exclusive collaboration that is focused on defined studies designed to explore the potential application of PRINT and GSK Materials selected by GSK in its sole discretion, in the Inhaled Field (the "**Inhaled Collaboration**").

3.2 Inhaled Plan. The Parties shall conduct the Inhaled Collaboration pursuant to a work plan (the "**Inhaled Plan**"), that sets forth specific activities to be pursued by each Party, including reasonably detailed timelines and budgets associated with such activities. Under the Inhaled Plan, Liquidia would be primarily responsible for generating PRINT Materials, generating Research Materials using PRINT Materials and GSK Materials, and scaling up its manufacturing capabilities, and GSK would be primarily responsible for *in vitro* and *in vivo* evaluation of the PRINT Materials and Research Materials in assays and preclinical models. As of the Effective Date, the Parties have agreed upon the initial Inhaled Plan and associated budget which is attached to this Agreement as Exhibit C. From time to time (at least on an annual basis), the JIRC shall update and prepare amendments to the then-current Inhaled Plan and associated budget and shall submit such amendments and budget to the JSC for review and approval. Once approved by the JSC, such revised Inhaled Plan and budget shall replace the prior applicable Inhaled Plan and budget. If the terms of an Inhaled Plan contradict, or create inconsistencies or ambiguities with, the terms of this Agreement, then the terms of this Agreement shall govern and control.

3.3 Inhaled Collaboration Term.

(a) Subject to the extensions provided in Sections 3.3(b) and (c), the term of the Inhaled Collaboration (the "**Inhaled Collaboration Term**") shall commence on the Effective Date and expire on the third (3rd) anniversary thereof.

(b) If delivery of PRINT Materials or Research Materials for the conduct of the Inhaled Plan as specified in the initial Inhaled Plan attached as Exhibit C does not occur within the first six (6) months after the Effective Date, and provided that Liquidia timely receives the necessary GSK Materials from GSK to make the Research Materials, then the Inhaled Collaboration Term shall be extended by the amount of time delivery is delayed past such six (6) month period.

(c) Subject to Section 3.3(b), the Inhaled Collaboration Term shall be automatically extended if (i) a delay in manufacturing and supply of PRINT Materials and Research Materials by Liquidia would have an adverse impact on the conduct of the Inhaled Collaboration, and (ii) the Parties mutually agree at the JSC that such delay is not likely to be remedied more quickly by a manufacturing technology transfer to a Third Party as described in

Section 5.2(c)(i). If the foregoing conditions are met, then the Inhaled Collaboration Term shall be extended by the amount of time delivery of PRINT Materials and Research Materials is delayed. For the avoidance of doubt, such delay shall not cause GSK to incur any additional FTE Costs or any other Collaboration Costs.

3.4 Collaboration Costs. GSK shall be responsible for Liquidia's FTE Costs, non-standard costs for lab supplies and manufacturing costs of PRINT Materials and Research Materials incurred solely in connection with the conduct of the Inhaled Plan (and not for activities outside of the conduct of the Inhaled Plan or in furtherance of Liquidia's collaborations with Third Parties) in accordance with the applicable budget (the **"Collaboration Costs"**). For clarity, manufacturing costs included in the Collaboration Costs shall not exceed [***] Dollars ($[***]) per single shift day for standard costs and shall not include any costs associated with capital expenditures for Liquidia's manufacturing facilities unless otherwise agreed by the Parties in accordance with Section 2.1(e)(ii). Notwithstanding anything to the contrary in this Agreement (including the Inhaled Plan and any revisions thereto), GSK shall fund no less than three (3) Liquidia FTEs, but no more than four (4) Liquidia FTEs to work on the Inhaled Collaboration per year. If the activities to be conducted under the Inhaled Plan require additional FTE support, then the JSC shall meet to discuss how to staff such additional activities, which may include contribution of GSK FTEs, at GSK's cost, to perform activities assigned to Liquidia. GSK shall reimburse Liquidia for the Collaboration Costs as set forth in Section 10.2. For the avoidance of doubt, GSK shall be responsible for all costs and expenses incurred by GSK to conduct the Inhaled Collaboration.

3.5 Conduct of Collaboration.

(a) Compliance with Laws; Animal Welfare. Each Party shall use Commercially Reasonable Efforts to carry out the activities assigned to it under the Inhaled Plan, and shall conduct such activities in good scientific manner and in compliance in all material respects with the principles set forth in the attached **Schedule 3.5** (to the extent such principles are applicable to the activities being conducted by that Party) and in compliance with all applicable Laws, including applicable national and international guidelines such as ICH and GLP. In addition to the foregoing, each Party shall at all times comply and shall ensure compliance by any of its subcontractors with the most current best practices for pharmaceutical companies for the proper care, handling and use of animals in pharmaceutical research and development activities, and with the "3R Principles" (reducing the number of animals used, replacing animals with non-animal methods whenever possible and refining the research techniques used), subject to the other Party's reasonable right of inspection, and will promptly and in good faith undertake reasonable corrective steps and measures to remedy the situation to the extent that any significant deficiencies are identified as a result of such inspection.

(b) Data Integrity. Each of the Parties acknowledges the importance of ensuring that the activities conducted under the Inhaled Plan are undertaken in accordance with the following good data management practices, and shall use Commercially Reasonable Efforts to ensure the following:

(i) data are being generated using sound scientific techniques and processes;

(ii) data are being accurately and reasonably contemporaneously recorded in accordance with good scientific practices by personnel conducting research or development hereunder;

(iii) data are being analyzed appropriately without bias in accordance with good scientific practices; and

(iv) data and results are being stored securely and can be easily retrieved.

(c) Material Transfer.

(i) Other than as may be set forth in the Development Supply Agreement (as defined in Section 9.1), in order to facilitate activities of the Parties under the Inhaled Plan, either Party (referred to in this Section 3.5(c) as the **"Transferring Party"**) may provide to the other Party (referred to in this Section 3.5(c) as the **"Material Receiving Party"**) certain materials, PRINT Materials, GSK Materials, Research Materials or Research Products Controlled by the Transferring Party (such materials provided hereunder are referred to, collectively, as "**Materials**") for use by the Material Receiving Party in furtherance of its rights and the conduct of its obligations under the Inhaled Plan and, in the event GSK exercises either or both of the Liquidia Respiratory Option or Inhaled Option, in furtherance of its rights under the Liquidia Respiratory License or Inhaled License, as applicable (the **"Purpose"**). All transfers of such Materials by the Transferring Party to the Material Receiving Party shall be documented in writing (the **"Transfer Record"**) that sets forth the type and name of the Material transferred, the amount of the Material transferred, the date of the transfer of such Material and the Purpose.

(ii) Except as otherwise provided under this Agreement, all such Materials delivered by the Transferring Party to the Material Receiving Party shall remain the sole property of the Transferring Party, shall only be used by the Material Receiving Party in furtherance of the Purpose, and shall be returned to the Transferring Party upon the termination of this Agreement or upon the discontinuation of the use of such Materials (whichever occurs first). The Material Receiving Party shall not cause the Materials to be used by or delivered to or for the benefit of any Third Party without the prior written consent of the Transferring Party.

(iii) At the time the Transferring Party provides Materials to the Material Receiving Party as provided herein and to the extent not separately licensed under this Agreement, the Transferring Party hereby grants to the other Party a non-exclusive license under the Patents and Know-How Controlled by it to use such Materials solely for the Purpose.

(iv) The Parties agree that the exchanged Materials: (A) shall be used in compliance with applicable Laws; (B) shall not be used in animals intended to be kept as domestic pets; (C) shall not be transferred to a Third Party except if this is provided for and is done in accordance with this Agreement; and (D) shall not be reverse engineered or chemically analyzed, except if this is provided for in the applicable Inhaled Plan.

(v) THE MATERIALS SUPPLIED BY THE TRANSFERRING PARTY UNDER THIS SECTION 3.5(c) ARE SUPPLIED "AS IS" AND NOT FOR USE IN HUMANS EXCEPT AS EXPRESSLY AGREED BY THE PARTIES IN WRITING, AND THE TRANSFERRING PARTY MAKES NO REPRESENTATIONS AND EXTENDS NO WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR THAT THE USE OF THE MATERIALS DOES NOT INFRINGE ANY PATENT, COPYRIGHT, TRADEMARK, OR OTHER PROPRIETARY RIGHTS OF A THIRD PARTY.

(vi) The Material Receiving Party assumes all liability for damages that may arise from its use, storage or disposal of the Materials. The Transferring Party shall not be liable to the Material Receiving Party for any loss, claim or demand made by the Material Receiving Party, or made against the Material Receiving Party by any Third Party, due to or arising from the use of the Materials, except to the extent such loss, claim or demand is caused by the gross negligence or willful misconduct of the Transferring Party.

3.6 Records and Reports. Until expiration of the JIRC Term, each Party shall provide written progress reports on the status of its activities under the Inhaled Plan, including detailed reports of data and Know-How arising from such activities, at least five (5) Business Days in advance of each JIRC meeting.

3.7 Subcontractors. Each Party shall have the right to engage subcontractors for the purpose of conducting activities assigned to it under the Inhaled Plan, provided that (a) the subcontractor undertakes in writing obligations of confidentiality and non-use regarding Confidential Information, that are substantially the same as those undertaken by the Parties pursuant to Article 14 hereof, and (b) the subcontractor agrees in writing to assign or otherwise grant exclusive, sublicensable rights to all intellectual property developed in the course of performing any such work under the Inhaled Plan to the Party retaining such subcontractor. Each Party shall remain responsible for any obligations under the Inhaled Plan that have been delegated or subcontracted to any subcontractor, and shall be responsible for the performance of its subcontractors.

3.8 Regulatory Matters. During the Inhaled Collaboration Term, GSK shall prepare, own and maintain all Regulatory Materials filed with Regulatory Authorities in the Territory in connection with the activities to be undertaken pursuant to the Inhaled Plan. As reasonably requested by GSK from time to time during the Inhaled Collaboration Term, Liquidia shall, at Liquidia's expense, promptly provide assistance to GSK with its filings and other interactions with Regulatory Authorities.

ARTICLE 4
OPTION RIGHTS; RIGHT OF FIRST NEGOTIATION

4.1 Liquidia Respiratory Option.

(a) During the Term, Liquidia has the right to develop the Liquidia Respiratory Product, and GSK shall have the right, but not the obligation, to contribute to the development of the Liquidia Respiratory Product as may be agreed by the Parties.

(b) Subject to the terms and conditions of this Agreement, Liquidia hereby grants to GSK an exclusive option, exercisable at GSK's sole discretion, to obtain the Liquidia Respiratory License described in Section 5.2(a) (the "**Liquidia Respiratory Option**").

(c) At such time as (i) Liquidia has compiled a data package for the Liquidia Respiratory Product sufficient to present to prospective licensees, or (ii) at GSK's written request, Liquidia shall present to GSK via the JSC such data package referred to in (i) above, or if (ii) is applicable, then Liquidia shall present to GSK a data package for the Liquidia Respiratory Product that contains all relevant material information and data reasonably requested by GSK at such time (for clarity, Liquidia shall not be required to provide GSK with PRINT Tooling). Thereafter, GSK may exercise the Liquidia Respiratory Option by providing written notice to Liquidia at any time before or upon the expiration of the Inhaled Collaboration Term (the "**Respiratory Option Notice**").

(d) If the Respiratory Option Notice is not provided by GSK before or upon the expiration of the Inhaled Collaboration Term, then: (i) the Liquidia Respiratory Option shall expire, and (ii) Liquidia shall have the right, in its discretion, to continue the development and commercialization of the Liquidia Respiratory Product, either on its own or in collaboration with a Third Party, with no further obligations to GSK.

4.2 Inhaled Option.

(a) Subject to the terms and conditions of this Agreement, Liquidia hereby grants to GSK an exclusive option, exercisable at GSK's sole discretion, to obtain the Inhaled License described in Section 5.2(b) (the "**Inhaled Option**").

(b) GSK may exercise the Inhaled Option by providing written notice to Liquidia (the "**Inhaled Option Notice**") at any time before or upon the date that is six (6) months after the expiration of the Inhaled Collaboration Term and receipt by GSK of all the final data and results generated by or on behalf of Liquidia under the Inhaled Collaboration (the "**Inhaled Option Period**").

(c) If the Inhaled Option Notice is not received by Liquidia before or upon the expiration of the Inhaled Option Period, then: (i) the Inhaled Option shall expire, (ii) each Party shall have the right to practice and/or license the Joint Inhaled Collaboration Know-How as joint owner, without any requirement of gaining the consent of, or accounting to, the other Party, (iii) each Party shall provide the other Party with copies of all Joint Inhaled Collaboration Know-How generated in the course of performing the Inhaled Plan not already in the receiving Party's possession.

(d) Notwithstanding anything to the contrary herein, if GSK exercises the Inhaled Option, then each Party shall thereafter have the right to practice and/or license its interests in the Joint Inhaled Collaboration Know-How outside the Inhaled Field (but not in the Exercised Disease Fields, if the Vaccine Option has been exercised under the terms of the Vaccine Collaboration Agreement) as joint owner, without any requirement of gaining the consent of, or accounting to, the other Party.

4.3 Right of First Negotiation. If during the Inhaled Option Period and/or Vaccines Option Period, Liquidia desires to grant a non-exclusive license to its interest in the Joint Inhaled Collaboration Know-How or Joint Vaccines Collaboration Know-How as described in Section 11.4(b)(iii), then it shall first notify GSK and GSK Bio of such desire in writing, describing in reasonable detail the scope of the license it is interested in granting to a Third Party from whom Liquidia has received a term sheet or letter of intent (the **"ROFN Notice"**) and GSK and/or GSK Bio thereafter shall have the exclusive right of first negotiation to obtain an exclusive, worldwide, sublicensable license to Liquidia's interest in the Joint Inhaled Collaboration Know-How or Joint Vaccines Collaboration Know-How, as applicable, and any other intellectual property rights (which may include Liquidia Technology) then controlled by Liquidia that are necessary or reasonably useful for the making, having made, use, sale, offering for sale or importation of products in the applicable field (i.e. a field outside vaccines applications and/or the Inhaled Field). GSK or GSK Bio shall have thirty (30) days from the receipt of the ROFN Notice to inform Liquidia in writing of its election to negotiate the terms of such exclusive license, and another thirty (30) days to submit to Liquidia an initial proposal for the terms of such exclusive license. If GSK or GSK Bio delivers such notice during the first thirty (30) day period and submits the initial proposal within the second thirty (30) day period, Liquidia shall negotiate exclusively in good faith with GSK or GSK Bio, for a period not to exceed six (6) months from GSK's or GSK Bio's receipt of the ROFN Notice (the **"Negotiation Period"**), the terms under which Liquidia will grant such exclusive license to GSK or GSK Bio. If GSK or GSK Bio and Liquidia fail to reach a binding written agreement for the exclusive license by the end of the Negotiation Period, then Liquidia shall be free to negotiate with any Third Party for a non-exclusive license within the same applicable field that was the subject of negotiations with GSK or GSK Bio, and to grant such non-exclusive license to any Third Party; provided, that if Liquidia grants such non-exclusive license to a Third Party within nine (9) months after the expiration of Negotiation Period, then the terms of such Third Party license shall be no less favorable to Liquidia than the terms last proposed by GSK or GSK Bio to Liquidia. Notwithstanding anything to the contrary, the licenses that Liquidia may grant to a Third Party in a particular proposed field include Joint Inhaled Collaboration Know-How or Joint Vaccines Collaboration Know-How, as the case may be, that arises during the Inhaled Collaboration Term or Vaccine Collaboration Term, as the case may be, including after the date of the ROFN Notice, and all such Joint Inhaled Collaboration Know-How or Joint Vaccines Collaboration Know-How (including any Joint Inhaled Collaboration Know-How or Joint Vaccines Collaboration Know-How that arises after the expiration of Negotiation Period) shall be thereafter excluded from and not subject to this Section 4.3 as to the particular field proposed to GSK. Further, each time Liquidia desires to grant a non-exclusive license to the Joint Inhaled Collaboration Know-How or Joint Vaccines Collaboration Know-How in a different field than previously proposed to GSK in the right of first negotiation described in this Section 4.3, either to the same Third Party or a different Third Party, then such additional license in a different field shall first be offered to GSK or GSK Bio on the terms set forth above. Subject to Section 4.4 below, Liquidia shall be free to grant non-exclusive licenses to its interest in the Joint Inhaled Collaboration Know-How or Joint Vaccine Collaboration Know-How outside the field of prescription pharmaceutical drugs, products sold on an over-the-counter basis after switching from a prescription basis, or biological products (including biosimilar products) at any time, and the right of first negotiation described in this Section 4.3 shall only apply in the field of prescription pharmaceutical products, pharmaceutical products sold on an over-the-counter basis after switching from a prescription

basis, or vaccine or biological products (including biosimilar products). For purposes of this Section 4.3, "biological products" means any products that cause a biological effect in humans, including, for example, vaccines, monoclonal antibodies and cytokines.

4.4 Consumer Health and Diagnostics. During the Inhaled Option Period and/or Vaccines Option Period, Liquidia shall have the right to grant a non-exclusive license to its interests in the Joint Inhaled Collaboration Know-How or Joint Vaccines Collaboration Know-How as described in Section 11.4(b)(iii) for use in the consumer healthcare field or diagnostic field; provided, that it shall first notify GSK and GSK Bio of such desire in writing, describing in reasonable detail the scope of the license it is interested in granting to a Third Party.

ARTICLE 5
LICENSES

5.1 Collaboration License Under Liquidia Technology. Subject to the terms and conditions of this Agreement, Liquidia hereby grants to GSK a non-exclusive, worldwide, sublicensable license, under the Liquidia Technology for the sole purpose of carrying out GSK's obligations and research rights under the Inhaled Plan, which license shall become effective on the Effective Date and shall expire upon the earlier of the expiration of the Inhaled Collaboration Term (as may be extended under Section 3.3) or GSK's exercise of the Inhaled Option. The license grant in this Section 5.1 will include the right to have made Research Materials as further described in Section 5.2(c)(i).

5.2 Development and Commercial Licenses.

(a) Liquidia Respiratory License. Upon GSK's exercise of the Liquidia Respiratory Option pursuant to Section 4.1(c) and subject to the terms and conditions of this Agreement, Liquidia shall be deemed to have granted and hereby grants to GSK an exclusive, worldwide, royalty bearing license, with the right to grant sublicenses solely as provided in Section 5.4, under the Liquidia Technology and Liquidia's interest in and to Joint Inhaled Collaboration Patents and Joint Inhaled Collaboration Know-How and Liquidia's interest in and to Joint Vaccine Collaboration Know-How and Joint Vaccine Collaboration Patents to make, have made, use, sell, offer for sale and import the Liquidia Respiratory Product in the Liquidia Respiratory Field in the Territory (the "**Liquidia Respiratory License**").

(b) Inhaled License. Upon GSK's exercise of the Inhaled Option pursuant to Section 4.2(b) and subject to the terms and conditions of this Agreement, Liquidia shall be deemed to have granted and hereby grants to GSK an exclusive, worldwide, royalty bearing license, with the right to grant sublicenses solely as provided in Section 5.4, under the Liquidia Technology, Liquidia's interest in and to Joint Inhaled Collaboration Patents and Joint Inhaled Collaboration Know-How and Liquidia's interest in and to Joint Vaccine Collaboration Know-How and Joint Vaccine Collaboration Patents to make, have made, use, sell, offer for sale and import Research Products and Inhaled Products (which, for clarity, excludes the Liquidia Respiratory Product) in the Inhaled Field in the Territory (the **"Inhaled License"**).

(c) Additional License Terms. Notwithstanding anything to the contrary herein, the use of the terms "have made" and "make" in the license granted to GSK under

Section 5.1, as well as the Liquidia Respiratory License in Section 5.2(a) and the Inhaled License in Section 5.2(b), shall be subject to the additional terms and restrictions set forth below.

(i) GSK's license under Section 5.1 to "have made" Research Materials shall be limited to the right to engage a Third Party reasonably acceptable to Liquidia to make Research Materials using PRINT molds supplied by Liquidia (including the right to manufacture PRINT Material) if Liquidia cannot fulfill its obligation to supply Research Materials under Section 9.1(a); provided, that such Third Party shall not have the right to use or access PRINT Tooling unless Liquidia also fails to supply PRINT molds as described above, in which case, Liquidia also shall provide PRINT Tooling to such Third Party. In addition, the foregoing right to "have made" shall apply only when the Parties reasonably agree, based on discussion at the JSC as described in Section 2.1(d)(viii), that engagement of a Third Party as described above is more likely to decrease the delay of conducting the Inhaled Plan due to lack of supply of PRINT Materials and Research Materials than allowing Liquidia to cure such inability to supply.

(ii) GSK's right to "make" and "have made" Liquidia Respiratory Product, Research Products and Inhaled Products as set forth in Sections 5.2(a) and (b) shall be limited as follows:

(A) after exercise of the Liquidia Respiratory Option or Inhaled Option, as applicable, GSK shall have the right to make, and to engage a Third Party reasonably acceptable to Liquidia to make, the Liquidia Respiratory Product or Research Products, as applicable, using PRINT molds supplied by Liquidia (including the right to manufacture PRINT Material), if Liquidia cannot or does not supply PRINT Materials or Research Products in accordance with an agreed Development Supply Agreement, as required for GSK to develop the Liquidia Respiratory Product or Research Products; provided that GSK and such Third Party shall not have access to or the right to use PRINT Tooling under this Section 5.2(c)(ii)(A), subject to Section 5.2(c)(ii)(B);

(B) after exercise of the Liquidia Respiratory Option or Inhaled Option, as applicable, GSK shall have the right to make, and to engage a Third Party reasonably acceptable to Liquidia to make, the Liquidia Respiratory Product or Research Products, as applicable, using PRINT and PRINT Tooling if either (1) the conditions of Section 5.2(c)(ii)(A) are met and Liquidia does not or cannot supply PRINT molds as set forth in Section 5.2(c)(ii)(A), or (2) the Parties cannot agree to the terms of a Development Supply Agreement; and

(C) after exercise of the Liquidia Respiratory Option or Inhaled Option, as applicable, and either (1) failure of Liquidia to fulfill its obligations under the Commercial Supply Agreement described in Section 9.2, including manufacture in accordance with GMP and GSK's quality standards, (2) the Parties' inability to agree on commercially reasonable terms of a Commercial Supply Agreement, or (3) GSK's assessment, in its sole discretion, that Liquidia shall not be GSK's supplier (in which case no Commercial Supply Agreement will be entered into between GSK and Liquidia), then, in each case, GSK shall have the right to make, and to engage a Third Party to make the Liquidia Respiratory Product, Research Products or Inhaled Products, as applicable, using PRINT and PRINT Tooling

(including the right to manufacture PRINT Material) for development of Research Products that require commercial grade supply or for development and commercialization of Inhaled Products.

5.3 Liquidia Retained Rights. Notwithstanding the licenses granted to GSK in Sections 5.1 and 5.2 above, and to GSK Bio in Sections 5.1 and 5.2 of the Vaccine Collaboration Agreement, Liquidia retains the following: (a) the right to practice the Liquidia Technology to exercise its rights or to fulfill its obligations under this Agreement and the Vaccine Collaboration Agreement; and (b) the exclusive right to practice and license the Liquidia Technology outside the scope of the rights granted to GSK in this Agreement and GSK Bio in the Vaccine Collaboration Agreement.

5.4 Sublicense Rights.

(a) GSK shall have the right to grant sublicenses of the licenses granted in Section 5.2 to its Affiliates (for so long as such entity remains an Affiliate) or Third Parties. GSK shall remain responsible for all of its sublicensees' activities and any and all failures by its sublicensees to comply with the applicable terms of this Agreement.

(b) GSK shall promptly notify Liquidia of any material sublicense to a Third Party and provide Liquidia with a true and complete copy of such sublicense agreement; provided, that GSK shall be permitted to redact all financial information from such sublicense agreement and each such sublicense agreement will be considered the Confidential Information of GSK. Each such sublicense agreement shall be consistent with the terms and conditions of this Agreement and shall include the following terms and conditions:

(i) the sublicensee shall be bound by and subject to all applicable terms and conditions of this Agreement in the same manner and to the same extent as GSK is bound thereby; and

(ii) GSK and Liquidia shall have the same rights, ownership and/or licenses to all Know-How generated by such sublicensee to the same extent as if such Know-How was generated by GSK.

5.5 Licenses Under GSK Technology. Subject to the terms and conditions of this Agreement, GSK hereby grants to Liquidia (a) a non-exclusive, worldwide license, under GSK Technology for the sole purpose of carrying out Liquidia's obligations under the Inhaled Plan, which license shall become effective on the Effective Date and shall expire upon the expiration of the Inhaled Collaboration Term; and (b) a non-exclusive, worldwide license, with the right to grant sublicenses through multiple tiers, under the PRINT Improvements for uses outside the Exercised Fields. In the event that Liquidia or its Affiliates or sublicensees sells any product that utilizes PRINT Improvements licensed to Liquidia, then GSK shall be entitled to receive a royalty of [***] percent ([***]%) of net sales of such products sold by or on behalf of Liquidia, and [***] percent ([***]%) of any payments (including royalties, fees and milestones) received by Liquidia from its sublicensees on the sale of any such product, on a country-by-country basis, commencing upon the First Commercial Sale of such product in any country and expiring upon the date that is ten (10) years after the First Commercial Sale of the product in such country. Thereafter, the license granted by GSK under Section 5.5(b) shall continue and become

perpetual, royalty free and fully paid. In addition, if it is necessary for Liquidia to obtain a license from a Third Party in order to practice the PRINT Improvements in order to sell such product, then the payment due to GSK shall be reduced by an amount equal to [***] percent ([***]%) of the license payments paid by Liquidia to such Third Party pursuant to such license on account of such sale; and provided further that, in no event shall the amount due to GSK be reduced to less than [***] percent ([***]%) of the payment otherwise due to GSK on such sale in any particular calendar quarter, and Liquidia shall have the right to carry forward to subsequent calendar quarters any Third Party payment deductions that Liquidia is unable to deduct.

5.6 No Implied Licenses. Except as explicitly set forth in this Agreement, neither Party shall be deemed by estoppel or implication to have granted the other Party any option, license or other right to any intellectual property right of such Party. Neither Party shall, nor permit any of its Affiliates or sublicensees to, practice any intellectual property rights licensed to it by the other Party outside the scope of the licenses granted to it under this Agreement.

5.7 UNC and Third Party Agreements.

(a) GSK acknowledges and agrees that it has received an unredacted copy of the UNC License, UNC Research Agreement and UNC Material Transfer Agreement, as well as a partially redacted copy of the Consulting Agreement. GSK further acknowledges that Liquidia has the right to extend the term of the UNC Research Agreement to enable UNC to conduct further research

under the applicable Research Program (as defined in the UNC Research Agreement), subject to the conditions set forth in this Agreement. Any and all research to be conducted by UNC or by the Consultant under the Research Program, under the UNC Material Transfer Agreement or under the Consulting Agreement that would otherwise be within the Inhaled Field or Co-Delivery Vaccine Field shall be discussed at the JSC as provided in Section 2.1 (for so long as the JSC is in existence, and thereafter the Parties shall discuss between them or at the Advisory Council as reasonably required), and Liquidia shall acquire an exclusive license to any and all University Inventions, inventions made under the UNC Material Transfer Agreement and inventions made under the Consulting Agreement, that are necessary or useful in the Inhaled Field or Co-Delivery Vaccine Field (including inventions that fall outside the Inhaled Field or Co-Delivery Vaccine Field but are related to General Biological Effects). Liquidia shall not authorize or enable any Third Party (other than UNC) to conduct research using PRINT or PRINT Materials in the Inhaled Field or Co-Delivery Vaccine Field, and shall ensure that UNC and the Consultant do not enable a Third Party (other than UNC) to conduct research using PRINT or PRINT Materials in the Inhaled Field or Co-Delivery Vaccine Field, in either case, without the prior written consent of GSK. If UNC or Consultant desires to enter into an agreement with a Third Party relating to PRINT or PRINT Materials outside the Inhaled Field or Co-Delivery Vaccine Field, then, unless GSK and Liquidia mutually determine otherwise, Liquidia shall obtain a non-exclusive, sublicensable, royalty free license to any inventions made by such Third Party under such agreement prior to Liquidia giving consent for UNC or Consultant to enter into such Third Party agreement. Upon GSK's request, Liquidia shall use Commercially Reasonable Efforts to acquire an exclusive license to inventions arising from research conducted by Third Parties outside the Inhaled Field and Co-Delivery Vaccine Field, if such inventions are related to General Biological Effects. Any University Inventions or Third Party inventions or inventions covered by the Consulting Agreement or UNC Material Transfer

Agreement for which Liquidia obtains ownership or Control as described in this Section 5.7 (including control through a non-exclusive sublicenseable license), and that are Liquidia Know-How or are encompassed within Liquidia Patents shall be, and are, automatically included in the Inhaled License or Liquidia Respiratory License to the extent the Inhaled Option or Liquidia Respiratory Option, respectively, has been exercised by GSK, without further action by the Parties or payment by GSK. GSK hereby acknowledges and agrees that GSK's rights to some such inventions arising from UNC Third Party research activities may be limited to non-exclusive rights.

5.8 Liquidia Technology Transfer. Promptly following the exercise of the Liquidia Respiratory Option and/or Inhaled Option, as the case may be, and no later than ninety (90) days following such exercise, to the extent not previously transferred and delivered to GSK, Liquidia shall transfer and deliver to GSK, Liquidia Technology and Joint Inhaled Collaboration Know-How and Joint Vaccine Collaboration Know-How in its Control, to enable GSK to practice under the Liquidia Respiratory License and/or Inhaled License as contemplated under this Agreement; provided, that transfer, if any, of PRINT, PRINT Tooling and Know-How covering the manufacture by or on behalf of GSK of PRINT Material, Research Materials, Research Products, Inhaled Products and the Liquidia Respiratory Product pursuant to Article 9 and Section 5.2 shall be governed by Section 9.3 and not by this Section 5.8. After the transfer described above, Liquidia shall use Commercially Reasonable Efforts to cooperate with GSK to provide GSK with any additional Liquidia Technology, to the extent not previously transferred and delivered to GSK, to which Liquidia obtains Control as it may be developed, identified or exist and that is included within the scope of the Liquidia Respiratory License or Inhaled License, as the case may be. Costs of technology transfers under this Section 5.8 shall be borne by Liquidia.

5.9 Data Exchange in Absence of Option Exercise. In the event that GSK exercises one of, but not both, the Inhaled Option or the Liquidia Respiratory Option under this Agreement, then GSK shall promptly provide Liquidia with copies of Joint Inhaled Collaboration Know-How that is not already in its possession and Liquidia shall have the right to use and reference all such Joint Inhaled Collaboration Know-How in the Retained Field. **"Retained Field"** means the Liquidia Respiratory Field if the Liquidia Respiratory Option is not exercised by GSK or the Inhaled Field if the Inhaled Option is not exercised by GSK.

ARTICLE 6
PRODUCT DEVELOPMENT

6.1 General. After the exercise of the Liquidia Respiratory Option or the Inhaled Option, as applicable, GSK shall be solely responsible for the continued development of the Liquidia Respiratory Product or Research Products in the applicable Exercised Field, at GSK's cost and expense, subject to the supply by Liquidia of GSK's requirements for PRINT Materials, Liquidia Respiratory Product and/or Research Products as set forth in Section 9.1(b).

6.2 Diligence. After the exercise of the Inhaled Option or Liquidia Respiratory Option, as applicable, GSK shall use Commercially Reasonable Efforts to develop and seek Regulatory Approval in the Territory, for the Liquidia Respiratory Product and Research Products in the applicable Exercised Field(s). Without limiting the foregoing, if GSK exercises the Inhaled Option and fails to initiate any Clinical Trial on at least [***] Research Product in

the Inhaled Field within six (6) years after the Effective Date (such event, a "**Development Delay**"), GSK shall provide Liquidia with a written explanation of the Development Delay for the applicable Research Products. If the Development Delay was not caused solely or primarily for valid scientific reasons (which would include issues with respect to safety and efficacy as well as delays due to feedback from Regulatory Authorities, whether related to the PRINT Material used in the Research Product or the GSK Material contained in the Research Product), then Liquidia shall have the right, but not the obligation, to convert the Inhaled License to a non-exclusive license upon written notice to GSK; provided, that conversion of the Inhaled License to non-exclusive shall be Liquidia's sole and exclusive remedy in the event of a Development Delay and Liquidia shall not have the right to terminate this Agreement in accordance with Section 15.3; and provided, further that if the Development Delay is caused by the failure of Liquidia or its contract manufacturer to provide GSK with its required supply of PRINT Materials or Research Products then Liquidia shall not have the right to convert the Inhaled License to non-exclusive. In addition, and notwithstanding anything to the contrary, GSK's obligation to use Commercially Reasonable Efforts is agreed by the Parties to be dependent upon GSK's timely receipt of GSK's requirements of viable PRINT Materials or Research Products that meet all applicable specifications agreed to by the Parties and/or Liquidia's third party contract manufacturer. Any failure to timely deliver PRINT Materials or Research Products to GSK as described above by Liquidia or a third party contract manufacturer, and any subsequent delays or modifications to GSK's development plans with respect to any Research Product resulting from such failure to supply shall not be deemed to be GSK's failure to use Commercially Reasonable Efforts under this Section 6.2.

6.3 Development Records and Reports. GSK shall maintain complete, current and accurate records of all development activities conducted by it hereunder, and all data and other Know-How resulting from such activities in accordance with the principles set forth in Section 3.5(b) and 3.6. Upon expiration of the JSC Term, at Liquidia's request, which request shall not be made more frequently than annually until such earlier time as GSK either files the first NDA for a particular Research Product or ceases development of a particular Research Product, GSK shall provide Liquidia with written reports summarizing the material activities of GSK with respect to the development of such Research Product in the Territory, to enable Liquidia to determine GSK's compliance with its diligence obligations hereunder; provided, that GSK shall not be required to provide any confidential or proprietary information regarding any GSK Material, whether owned by GSK or licensed to GSK by a Third Party. If Liquidia has any questions with respect to the information set forth in any report provided by GSK under this Section 6.3, then Liquidia shall direct such questions to GSK's Alliance Manager and GSK shall make reasonably available to Liquidia appropriate technical or scientific personnel who are knowledgeable about the development activities conducted by GSK with respect to the Research Products that are the subject of the report, to respond to such questions in a timely manner, via teleconference, in person or such other mode of communication as the Parties may mutually agree, subject always to the proviso set forth in the preceding sentence.

ARTICLE 7
REGULATORY MATTERS

7.1 Regulatory Responsibilities.

(a) GSK Responsibilities. After the exercise of the Liquidia Respiratory Option or the Inhaled Option, GSK shall be solely responsible, at its expense, for preparing, filing and maintaining Regulatory Materials for the Research Products and Products. GSK shall own all Regulatory Materials for the Research Products and Products.

(b) Liquidia Responsibilities. Notwithstanding the foregoing, (i) to the extent applicable in the event that Liquidia is responsible for the manufacture and supply of the PRINT Materials and the same PRINT Material is used in more than one Research Product or Products, Liquidia shall be responsible, at its cost, for the preparation, filing and maintenance of the Drug Master File(s) related to PRINT and PRINT Materials (the **"PRINT DMF"**), and GSK shall be permitted to review and cross-reference the PRINT DMF in its Regulatory Materials and filings for Research Products and Products, and (ii) in the event that filing of a PRINT DMF is not applicable, Liquidia shall make available to GSK all required chemistry, manufacturing and controls (**"CMC"**) data, at

Liquidia's cost, related to PRINT and PRINT Materials required for filing with the applicable Regulatory Authorities in connection with the Research Products and Products, and GSK shall use such CMC data solely for such purpose in accordance with the terms and conditions of this Agreement including the scope of the license grant. At Liquidia's reasonable request, GSK shall provide Liquidia, at GSK's cost, with all required assistance with respect to the preparation, filing and maintenance of the PRINT DMF that GSK intends to cross-reference. Liquidia shall keep GSK informed of any changes to the PRINT DMF (or CMC data in the event that PRINT DMF is not applicable) to enable GSK to update its Regulatory Materials and filings related to Research Products and Products in a timely manner. To the extent either Party receives communications and/or responses from any Regulatory Authority with respect to the PRINT DMF or CMC data, such Party shall inform and consult with the other Party with respect to such communications and responses, and to the extent permitted by applicable Laws, the other Party shall be permitted to attend as an announced but silent observer, any meetings between such Party and Regulatory Authorities that are related to the PRINT DMF or CMC data as they relate to Research Product or Products.

7.2 Regulatory Matters. GSK shall keep Liquidia reasonably informed of all material regulatory developments relating to the safety of the PRINT Materials used in the Research Products or Products, shall promptly notify Liquidia each time the PRINT DMF is cross-referenced by GSK in its Regulatory Filings, and shall provide Liquidia with copies of the portion of such Regulatory Filing that is related to the safety of the PRINT Materials or the PRINT DMF. In addition, GSK shall promptly notify Liquidia of the filing of MAAs and receipt of Regulatory Approvals in the United States, any Major EU Market and Japan. Each Party shall provide the other Party with reasonable advance notice of all material meetings and planned discussions scheduled with the FDA or EMA concerning a Research Product or Product that are expected to relate to the safety of the PRINT Materials or PRINT DMF, and each Party shall provide the other Party with all reasonable assistance, at the other Party's request and at the providing Party's cost, with respect to the other Party's preparation for such meeting or discussion within a reasonable timeframe any technical information related to PRINT or the PRINT Material used in the applicable Research Product or Product that would be necessary or useful to such meeting or discussion. Each Party shall consider in good faith any input from the other Party in preparing for such meetings or discussions. To the extent permitted by applicable Laws, the other Party shall have the right to attend as an announced but silent observer any such

meetings or discussions solely to the extent relevant to the safety of PRINT Materials or PRINT DMF. If the other Party does not attend such meetings or discussions, such Party shall provide the other Party with written summaries of such meetings or discussions with respect to the safety of PRINT Materials or PRINT DMF as soon as practicable after the conclusion thereof.

7.3 Notification of Threatened Action. Except as provided in Section 7.4, GSK or Liquidia, as the case may be, shall immediately notify the other Party of any information it receives regarding any threatened or pending action, inspection or communication by or from any Third Party, including a Regulatory Authority, which may materially affect the development, commercialization or regulatory status of any Research Product or Product, or which may materially affect PRINT, PRINT Tooling or the PRINT Material. Upon receipt of such information, the Parties shall consult with each other in an effort to coordinate, to the extent reasonably necessary on appropriate action.

7.4 Adverse Event Reporting. If GSK exercises the Inhaled Option or Liquidia Respiratory Option, then GSK and Liquidia shall enter into a written pharmacovigilance agreement prior to GSK commencing the first Phase I Clinical Trial with the Liquidia Respiratory Product or the first Research Product, as the case may be, setting forth mutually acceptable guidelines and procedures for the receipt, investigation, recordation, and communication of adverse events and safety data that relate to the PRINT Material. Such guidelines and procedures shall be in accordance with, and enable the Parties to fulfill, each Party's reporting obligations under applicable Laws. Each Party shall comply with its respective obligations under such pharmacovigilance agreement and shall cause its Affiliates and permitted sublicensees to comply with such obligations. GSK shall be responsible for creating and maintaining a global safety database for each Research Product and Product in the applicable Exercised Field, at GSK's expense. GSK shall be responsible for reporting quality complaints, adverse events and safety data related to each Research Product or Product to applicable Regulatory Authorities, as well as responding to safety issues and to all requests of Regulatory Authorities relating to the Research Products and Products; provided that Liquidia shall cooperate as required by GSK to the extent the foregoing are related to PRINT or the PRINT Materials and will supply GSK with all information requested by GSK to allow GSK to fulfill its reporting obligations hereunder. GSK will provide Liquidia with reasonable access to such safety database and promptly report any adverse events related to the PRINT Materials reasonably in advance of any reporting to the applicable Regulatory Authority where practical.

7.5 Remedial Actions. GSK shall have the right to decide whether any recall, corrective action or other regulatory action with respect to any Product taken by virtue of applicable Laws (a "**Remedial Action**") with respect to Products should be commenced, with advance notice, if reasonably practicable, to Liquidia; provided, that GSK shall have the right to make the final decision, in GSK's sole discretion, regarding whether or not any Product shall be recalled. GSK shall bear the costs of any Remedial Action except for any Remedial Action that is initiated due to a defect arising solely from Liquidia's (or a Third Party's on behalf of Liquidia) failure to manufacture, test, package, store, label, release or deliver any PRINT Materials or Products in compliance with the applicable specifications, quality agreement, GMP and/or applicable Laws, in which case Liquidia shall (a) bear all reasonable costs of the administration of such Remedial Action, and (b) reimburse GSK for (i) the price paid by GSK to

Liquidia for the PRINT Materials contained in such recalled Product, (ii) the actual costs for shipping (including freight and insurance), applicable transit charges, insurance premiums, duties, or taxes paid in connection with such recalled Product, and (iii) all direct manufacturing costs (labor and material charges at cost with no mark-up) incurred by GSK to re-manufacture any recalled Product.

ARTICLE 8
COMMERCIALIZATION

8.1 Responsibility; Diligence. After the exercise of the Liquidia Respiratory Option or the Inhaled Option, GSK will be solely responsible for, and use Commercially Reasonable Efforts to, commercialize the Liquidia Respiratory Product and each Inhaled Product in the applicable Exercised Field in countries in which Regulatory Approval is obtained. Such commercialization may include the following activities, conducted by or on behalf of GSK, in GSK's sole discretion; provided, nothing in this Agreement obligates GSK to conduct any of the following specific commercialization activities with respect to the Liquidia Respiratory Product or any Inhaled Product: (a) developing and executing a commercial launch strategy and plan for the Liquidia Respiratory Product and each such Inhaled Product; (b) negotiating with applicable Governmental Authorities regarding the price and reimbursement status of the Liquidia Respiratory Product and Inhaled Product; (c) marketing and promotion; (d) booking sales and distribution and performance of related services; (e) handling all aspects of order processing, invoicing and collection, inventory and receivables; and (f) providing customer support, including handling medical queries, and performing other related functions. GSK shall keep Liquidia reasonably informed on the commercialization of the Liquidia Respiratory Product and each Inhaled Product, including annual written reports summarizing significant commercialization activities for the Liquidia Respiratory Product and each Inhaled Product.

ARTICLE 9
MANUFACTURE AND SUPPLY

9.1 Research and Development Supply.

(a) Research Materials. Liquidia will be responsible for, and shall use Commercially Reasonable Efforts to, manufacture and supply all of the PRINT Materials and Research Materials reasonably required by GSK and Liquidia to carry out the Inhaled Plan as described therein; provided, that the costs and expenses in connection therewith shall be included in Collaboration Costs, subject to the limitations set forth in Section 3.4. Liquidia shall not be required to provide GSK with GMP supply of PRINT Materials and Research Materials during the Inhaled Collaboration Term prior to GSK's exercise of the Inhaled Option unless otherwise agreed by the Parties. If the JSC determines, due to an inability of Liquidia to timely manufacture and supply PRINT Materials and Research Materials reasonably required by GSK and Liquidia to carry out the Inhaled Plan (including GMP compliant PRINT Materials and Research Materials, if agreed by the Parties), that there shall be a manufacturing technology transfer as described in Sections 2.1(d)(viii) and 5.2(c)(i) and not an extension of the Inhaled Collaboration Term as described in Section 3.3(c), then GSK shall select a Third Party manufacturer that is reasonably acceptable to Liquidia to manufacture and supply GSK's requirements of PRINT Materials and Research Materials for the Inhaled Plan and Liquidia shall

initiate a technology transfer of PRINT (but not the PRINT Tooling) to such Third Party and continue to provide PRINT molds to such Third Party to enable such Third Party to make Research Materials; provided, that if Liquidia fails to supply PRINT molds, then Liquidia also shall provide PRINT Tooling to such Third Party. For clarity, the technology transfer described in Sections 9.1(a), 5.2(c)(i) and 9.3 shall not apply if Liquidia's lack of timely manufacture and supply of PRINT Materials and Research Materials as described above is due primarily to technical or scientific infeasibility, for example, with respect to creating the PRINT Materials or Research Materials contemplated under the Inhaled Plan. Alternatively, the technology transfer described in this Section 9.1(a) may apply, after discussion at the JSC, if Liquidia's lack of timely manufacture and supply of PRINT Materials and Research Materials is due primarily to, for example, Liquidia's failure to fulfill its manufacture and supply

obligations with respect to PRINT Materials or Research Materials that are technically or scientifically feasible in amounts contemplated under the Inhaled Plan, or an operational failure of PRINT that the JSC determines can be remedied faster by consummating a manufacturing technology transfer to a Third Party.

(b) Research Products. Liquidia will be responsible for manufacture and supply in accordance with GMP and GSK's quality standards all of the PRINT Materials, Liquidia Respiratory Product and/or Research Products (as applicable) reasonably required by GSK, its Affiliates and sublicensees for use in the development of the Research Products after the exercise of the Inhaled Option or Liquidia Respiratory Option and before the commencement of the first pivotal Clinical Trial for which Regulatory Authorities require commercial grade supply of the Liquidia Respiratory Product or Research Product, subject to and in accordance with the commercially reasonable terms and conditions of a clinical development and supply agreement to be mutually agreed and negotiated by the Parties (the **"Development Supply Agreement"**). The Parties will use reasonable efforts to negotiate the commercially reasonable terms of the Development Supply Agreement promptly after the exercise of the Inhaled Option and/or Liquidia Respiratory Option, as the case may be, which shall include provisions consistent with GSK's rights set forth in Section 5.2(c)(ii) in the event that Liquidia cannot or does not supply in accordance with the terms of such Development Supply Agreement; provided, that if the Parties cannot agree to the terms of a Development Supply Agreement then GSK's right to make and have made PRINT Materials, Liquidia Respiratory Product and/or Research Products as set forth in Sections 5.2(a), 5.2(b) and 5.2(c)(ii) shall apply.

9.2 Commercial Supply. GSK shall have the right to conduct a new contractor assessment of Liquidia to determine, in its sole discretion, that Liquidia is acceptable to GSK for the purposes of supplying PRINT Materials, Liquidia Respiratory Product, Research Products and Inhaled Products (but only if Inhaled Products are the same as Research Products and do not require further formulation or other work in order to be considered appropriate for commercial supply and development requiring commercial grade supply) for clinical trials requiring commercial grade supply and, if applicable, for further formulation work by GSK or a Third Party as Inhaled Products for commercialization on a worldwide basis. Such assessment of Liquidia's manufacturing capabilities will be conducted at the appropriate time to allow for technology transfer, if required, prior to manufacture of pivotal clinical trial material.

(a) If GSK determines in its sole discretion, based on GSK standard assessment criteria for contract manufacturing organizations, that Liquidia is acceptable to GSK

for the supply of PRINT Materials, Liquidia Respiratory Product, Research Products and/or Inhaled Products, as applicable, for the purposes described above in this Section 9.2, then subject to Section 9.2(b), Liquidia will be responsible for manufacture and supply in accordance with GMP and GSK's quality standards all of the PRINT Materials, Research Products, Liquidia Respiratory Product and/or Inhaled Products (as applicable) required by GSK, its Affiliates and sublicensees, subject to and in accordance with the commercially reasonable terms and conditions of a commercial supply agreement to be mutually agreed and negotiated by the Parties (the **"Commercial Supply Agreement"**). Consistent with GSK's rights as set forth in Section 5.2, such Commercial Supply Agreement shall provide that if Liquidia is unable to supply PRINT Materials, Liquidia Respiratory Product, Research Products or Inhaled Products as required by GSK, its Affiliates and sublicensees under the terms of the Commercial Supply Agreement, then upon GSK's request, Liquidia shall commence a technology transfer to GSK or GSK's Third Party manufacturer of PRINT, PRINT Tooling and any other information and technology reasonably necessary for GSK or GSK's Third Party manufacturer to manufacture and supply such requirements of the PRINT Materials, Liquidia Respiratory Product, Research Products or Inhaled Products. The Parties shall use Commercially Reasonable Efforts to jointly develop and complete a detailed technology transfer project plan within thirty (30) days after GSK's request to Liquidia to commence such technology transfer.

(b) If GSK determines in its sole discretion, based on GSK standard assessment criteria for contract manufacturing organizations, that Liquidia is either (i) not acceptable to GSK, or (ii) acceptable to GSK but GSK elects not to use Liquidia for supply for strategic business reasons, in either case for the supply of PRINT Materials, Liquidia Respiratory Product, Research Products and Inhaled Products for the purposes described above in this Section 9.2, then consistent with GSK's rights as set forth in Section 5.2, Liquidia shall commence a technology transfer to GSK or GSK's Third Party manufacturer of PRINT, PRINT Tooling and any other information and technology reasonably necessary for GSK or GSK's Third Party manufacturer to manufacture and supply such requirements of the PRINT Materials, Liquidia Respiratory Product, Research Products or Inhaled Products. The Parties shall use Commercially Reasonable Efforts to jointly develop and complete a detailed technology transfer project plan within thirty (30) days after GSK's request to Liquidia to commence such technology transfer. Solely in the event the circumstances set forth in Section 9.2(b)(ii) occur, the provisions of Section 10.6 shall apply.

9.3 Manufacturing Technology Transfer. To the extent a technology transfer to GSK or a Third Party contract manufacturer is required pursuant to Sections 9.1 or 9.2 above, then Liquidia shall conduct such technology transfer in accordance with a reasonable plan to be agreed between the Parties, and shall pay for such technology transfer during the agreed upon technology transfer period. Thereafter, GSK shall bear the cost of such technology transfer; provided, that Liquidia has used Commercially Reasonable Efforts to comply with the technology transfer plan within the agreed period of time; and provided further that if Liquidia does not use Commercially Reasonable Efforts to comply with the technology transfer plan within the agreed period of time, then Liquidia shall bear the costs of the remaining period of time applicable to such technology transfer. Notwithstanding the foregoing, if GSK has determined that it or a Third Party will be responsible for manufacture as set forth in Sections 9.2 and 5.2(c)(ii)(C)(2), then GSK shall bear the cost of such technology transfer, subject to

Liquidia's use of Commercially Reasonable Efforts to comply with the agreed technology transfer plan. Liquidia's obligation to transfer PRINT or PRINT Tooling (as applicable) shall only apply in the event that GSK has the right to make or have made the Research Materials, Liquidia Respiratory Product, Research Product and/or Inhaled Product using PRINT or PRINT Tooling under this Article 9 and Section 5.2.

9.4 U.S. Manufacturing Waiver. Promptly upon GSK's request, Liquidia shall use reasonable efforts to obtain a waiver to any requirement that Research Products or Products must be manufactured in the U.S. (including the requirements set forth in 35 U.S.C. §200 et seq. (the **"Bayh-Dole Act"**)) or to satisfy an applicable exception to such requirement. Liquidia will provide GSK with copies of all documents to be submitted in seeking such waiver in sufficient time for GSK to review and comment on the documents before their submission, and Liquidia shall incorporate GSK's reasonable comments and recommendations into such document. If such waiver is not obtained reasonably promptly after GSK's request, and such delay was not the result of GSK's failure to perform in accordance with this Section 9.4, then any such delay in commencing clinical trials shall not be deemed to be a Development Delay in accordance with Section 6.2.

9.5 No Product Formulation. Nothing in this Agreement shall be construed as requiring Liquidia to conduct, or requiring GSK to engage Liquidia to conduct, activities that may be necessary or useful to formulate Research Products into Inhaled Products suitable for sale by GSK, its Affiliates or sublicensees.

ARTICLE 10
COMPENSATION

10.1 Upfront Payment and Equity Investment.

(a) In partial consideration of the rights granted to GSK hereunder, GSK shall pay to Liquidia a one-time, non-refundable and non-creditable upfront payment of four million Dollars ($4,000,000). Such payment shall be payable by wire transfer of immediately available funds in accordance with wire transfer instructions of Liquidia provided in writing to GSK on or prior to the Effective Date. Such payment shall be made within ten (10) Business Days after GSK's receipt of an invoice from Liquidia on or after the Effective Date, which invoice shall be sent in PDF format to [***] with a copy to [***] and the Alliance Manager.

(b) Concurrent with the execution of this Agreement and the Vaccine Collaboration Agreement, in partial consideration of the rights granted to GSK under this Agreement, GSK and Liquidia shall enter into the Stock Purchase Agreement attached hereto as Exhibit D, pursuant to which GSK shall purchase from Liquidia and Liquidia shall sell to GSK 4,765,248 shares of Liquidia's Series C-1 preferred stock at a purchase price of $0.79744 per share for a total investment of $3,799,999.37.

10.2 Reimbursement of Collaboration Costs. Within fifteen (15) days after the end of each calendar quarter during the Inhaled Collaboration Term, Liquidia shall submit to GSK a reasonably detailed report and any additional documentation reasonably requested by GSK, setting forth all Collaboration Costs actually incurred by Liquidia in the conduct of the Inhaled Program in accordance with the Inhaled Plan and associated budget during such calendar quarter.

GSK shall reimburse Liquidia for the Collaboration Costs incurred as set forth in such report; provided, that any Collaboration Costs incurred in excess of [***] percent ([***]%) of the budgeted Collaboration Costs for the applicable quarter shall be borne by Liquidia unless such overage was approved in advance by the JSC. Notwithstanding the foregoing, any Collaboration Costs that are

incurred by Liquidia as a result of Liquidia's failure to use Commercially Reasonable Efforts or due to Liquidia's negligence, whether or not such Collaboration Costs are in excess of [***] percent ([***]%) of the budget for the applicable quarter, shall be borne entirely by Liquidia. GSK shall reimburse such Collaboration Costs within sixty (60) days after receipt of an invoice from Liquidia, which invoice shall be sent in PDF format to [***] with a copy to [***] (or such other email address(es) as may be notified to Liquidia by GSK). For the avoidance of doubt, the Collaboration Costs reimbursed to Liquidia by GSK shall be used by Liquidia solely to cover the costs of the conduct of the Inhaled Plan that are incurred after the Effective Date.

10.3 Option Exercise Fees.

(a) Within sixty (60) days following receipt of an invoice from Liquidia following Liquidia's receipt of the Respiratory Option Notice from GSK as set forth in Section 4.1(c), which invoice shall be sent in PDF format to [***] with a copy to [***] (or such other email address(es) as may be notified to Liquidia by GSK), GSK shall pay to Liquidia a one-time, non-refundable and non-creditable option exercise fee of ten million Dollars ($10,000,000).

(b) Within sixty (60) days following receipt of an invoice from Liquidia following Liquidia's receipt of the Inhaled Option Notice from GSK as set forth in Section 4.2(b), which invoice shall be sent in PDF format to [***] with a copy to [***] (or such other email address(es) as may be notified to Liquidia by GSK), GSK shall pay to Liquidia a one-time, non-refundable and non-creditable option exercise fee of fifteen million Dollars ($15,000,000).

10.4 Milestone Payments for Inhaled Field and Liquidia Respiratory Field.

(a) If GSK exercises the Liquidia Respiratory Option and/or the Inhaled Option, then subject to the remainder of this Section 10.4, GSK shall make each of the following non-refundable, non-creditable milestone payments to Liquidia, for the Liquidia Respiratory Product, and on a Research Product-by-Research Product basis or on an Inhaled Product-by-Inhaled Product basis, as applicable, upon achievement of the applicable development milestone events:

	Milestone Payments for Liquidia Respiratory Product, Research Products and Inhaled Products	
Milestone Events	**For New Therapeutic Products**	**For Rescue Therapeutic Products and Liquidia Respiratory Product**
First dosing of First Patient in Phase I Clinical Trial	$ 3,000,000	$ [***]
First dosing of First Patient in Phase II Clinical Trial	$ [***]	$ [***]
First dosing of First Patient in Phase III Clinical Trial	$ [***]	$ [***]
NDA/BLA approval by FDA with an Acceptable Label	$ [***]	$ [***]
MAA approval by EMA with an Acceptable Label, including price and reimbursement approval at a level acceptable to GSK, in the first three (3) of five (5) Major EU Markets	$ [***]	$ [***]
Total Milestone Payments for the Liquidia Respiratory Product or per Research Product or Inhaled Product, as applicable (subject to Section 10.4(b) below):	$ [***]	$ [***]

(b) The milestone payments set forth above in Section 10.4(a) shall be payable on the Liquidia Respiratory Product and the first [***] Research Products or Inhaled Products, as applicable (regardless of whether the Research Product or Inhaled Product is a New Therapeutic Product or Rescue Therapeutic Product) that achieve such milestone events; provided that the milestone payments for the [***] Research Products or Inhaled Products, as applicable, shall be reduced to [***]percent ([***]%) of the amounts set forth above in Section 10.4(a). In addition, in the event of a Development Delay and the subsequent conversion of GSK's Inhaled License to non-exclusive license in accordance with Section 6.2, the milestone payment for milestone events achieved by any Research Product or Inhaled Product, as applicable, after such conversion shall be reduced to [***] percent ([***]%) of the amount otherwise due. For clarity, no milestone payment shall be due for the [***] and subsequent Research Products or Inhaled Products, as applicable, which achieve the milestone events set forth above. For illustrative purposes only, if the Inhaled License is converted to non-exclusive and the fourth Research Product that is a New Therapeutic Product achieves First dosing in First Patient in Phase III Clinical Trial, then the amount due for such achievement shall be $[***].

(c) If a particular milestone is achieved by GSK, its Affiliates or sublicensees with respect to the Liquidia Respiratory Product or a particular Research Product or Inhaled Product, as applicable (regardless of whether the Research Product or Inhaled Product is New Therapeutic Product or Rescue Therapeutic Product), then all prior milestones for the Liquidia Respiratory Product, Research Product or Inhaled Product, as applicable, shall be deemed achieved upon achievement of that particular milestone. For the avoidance of doubt, GSK will not be responsible for payment of milestones achieved by the Liquidia Respiratory Product unless and until GSK exercises the Liquidia Respiratory Option, and only with respect to those achieved by GSK, its Affiliates or sublicensees after exercise of the Liquidia Respiratory Option. In addition, and subject to the foregoing sentence, all milestones shall be deemed achieved with respect to the Liquidia Respiratory Product or a particular Research Product or Inhaled Product upon the First Commercial Sale of the Liquidia Respiratory Product or the corresponding Inhaled

Product. For clarity, "prior" refers to the relative order in the table above, e.g., "First dosing of First Patient in Phase I Clinical Trial" being "prior" to "First dosing of First Patient in Phase II Clinical Trial".

(d) GSK shall notify Liquidia in writing promptly, but in no event later than ten (10) Business Days after each achievement of each milestone set forth above in this Section 10.4 that triggers a payment. GSK shall pay all such milestone payments due in Dollars within sixty (60) days after GSK's receipt of an invoice from Liquidia following the achievement of the corresponding milestone event. Such invoice shall be sent in PDF format to GSK's Alliance Manager and [***] with a copy to [***] (or such other e-mail address(es) as may be notified to Liquidia by GSK). GSK shall notify Liquidia of any deficiency in any invoice delivered to GSK hereunder promptly, and in no event more than seven (7) Business Days following GSK's receipt thereof.

10.5 Royalties.

(a) Royalty Rates

(i) Liquidia Respiratory Product. If GSK exercises the Liquidia Respiratory Option, then subject to Section 10.5(c) below, GSK shall pay Liquidia non-refundable, non-creditable incremental royalties on worldwide annual Net Sales of the Liquidia Respiratory Product as calculated by multiplying the applicable royalty rate by the corresponding amount of incremental Net Sales of the Liquidia Respiratory Product in each calendar year as follows:

Annual Net Sales of the Liquidia Respiratory Product	**Royalty Rate**
For that portion less than or equal to $[***]	[***]%
For that portion greater than $[***]but less than or equal to $[***]	[***]%
For that portion greater than $[***]	[***]%

(ii) Inhaled Products. If GSK exercises the Inhaled Option, then subject to Section 10.5(c) below, GSK shall pay Liquidia non-refundable, non-creditable incremental royalties on worldwide annual Net Sales on each Inhaled Product, as calculated by multiplying the applicable royalty rate by the corresponding amount of incremental Net Sales of such Inhaled Product in each calendar year as follows:

	Royalty Rate on an Inhaled Product-by-Inhaled Product basis		
Annual Net Sales of Each Inhaled Product	**For the first [***] Inhaled Products**	**For the [***] Inhaled Products**	**For [***] and all subsequent**

	that achieve First Commercial Sale	that achieve First Commercial Sale	Inhaled Products that achieve First Commercial Sale
For that portion less than or equal to $[***]	[***]%	[***]%	[***]%
For that portion greater than $[***]but less than or equal to $[***]	[***]%	[***]%	[***]%
For that portion greater than $[***]	[***]%	[***]%	[***]%

For example, if worldwide annual Net Sales of the first Inhaled Product are $800,000,000, then the royalties payable with respect to such annual Net Sales, subject to adjustment as set forth below, would be [***].

Notwithstanding the foregoing, in the event of a Development Delay and the subsequent conversion of GSK's Inhaled License to non-exclusive as set forth in Section 6.2, the royalty rates for Inhaled Products sold after such conversion shall be reduced to [***] percent ([***]%) of the rate set forth in the table above. By way of illustration only, if a Development Delay occurs and GSK subsequently achieves First Commercial Sale for the first Inhaled Product, then the royalty rates payable on Net Sales of such Inhaled Product would be [***] percent ([***]%) for Net Sales less than or equal to $[***] and [***] percent ([***]%) for Net Sales in excess of $[***], in either case, subject to the reductions set forth below in Section 10.5(c).

(b) Royalty Term. Royalties set forth in Section 10.5(a) shall be paid in accordance with the terms of Section 10.5 (including Section 10.5(c) below), on a country-by-country basis and Product-by-Product basis, commencing on First Commercial Sale of the Product, as the case may be, in such country until the latest of: (i) the expiration of the last-to-expire Valid Claim in such country that, but for the Inhaled License granted in Section 5.2(b) or the Liquidia Respiratory License granted in Section 5.2(a), would be infringed by the sale or approved method of use of the Product; (ii) the expiration of Regulatory Exclusivity in such country covering the Product; and (iii) the tenth (10^{th}) anniversary of the First Commercial Sale of the Product in such country, but in no event later than December 31, 2045 (the "**Royalty Term**").

(c) Royalty Reductions.

(i) Know-How Royalty. On a country-by-country and Product-by-Product basis, if the Product is generating Net Sales in a country during the applicable Royalty Term and the sale or approved method of use of the Product does not infringe any Valid Claim in

such country, then the royalty rate applicable to Net Sales of the Product in such country shall be reduced to [***]percent ([***]%) of the royalty rate set forth above in Section 10.5(a) (as reduced by conversion to a non-exclusive license pursuant to a Development Delay, if applicable).

(ii) Generic Competition. On a country-by-country and Product-by-Product basis, if the Product is generating Net Sales in a country during the applicable Royalty Term and a Generic Product with respect to the Product is sold in such country, then the royalty rate applicable to Net Sales of the Product in such country shall be reduced to [***]percent ([***]%) of the royalty rate set forth above in Section 10.5(a) (as reduced by conversion to a non-exclusive license pursuant to a Development Delay, if applicable), commencing with the Net Sales made after the first calendar quarter during which the unit volume of all such Generic Products sold by Third Parties in such country exceeds, in each month during such calendar quarter, [***]percent ([***]%) of the combined unit volume of the Product and such Generic Product sold in such month in such country. All such determinations of unit volume shall be based on a mutually acceptable calculation method and using market share data provided by a reputable and mutually agreed upon provider, such as IMS Health.

(iii) Third Party Royalties.

(A) First Product. If it is necessary for GSK, as determined by GSK in its sole discretion, to obtain a license from a Third Party to avoid infringing a Third Party Patent in connection with practicing PRINT or using the PRINT Material contained in the first Product sold under this Agreement, then GSK shall have the right to deduct from the royalties otherwise due to Liquidia on the sale of such Product an amount equal to [***] percent ([***]%) of the royalty payment paid by GSK to such Third Party pursuant to such license on account of such sale; provided, that GSK shall not be permitted to deduct royalties payable to Third Parties in an amount that would reduce the royalty rate payable to Liquidia by more than [***] percent ([***]%), subject always to Section 10.5(c)(iv) below. GSK shall have the right to carry forward against royalties payable on the sale of such first product in a subsequent calendar quarter any Third Party payment reduction that GSK is unable to take on such first product due to such limitation, subject to the limitation set forth in the proviso in the preceding sentence.

(B) Subsequent Products. If it is necessary for GSK, as determined by GSK in its sole discretion, to obtain a license from a Third Party to avoid infringing a Third Party Patent in connection with the sale of Products sold under this Agreement (other than the first Product for which deduction of Third Party royalties are governed by Section 10.5(c)(iii)(A)), then GSK shall have the right to deduct from the royalties otherwise due to Liquidia on the sale of such Product an amount equal to [***]percent ([***]%) of the royalty payment paid by GSK to such Third Party pursuant to such license on account of such sale; provided, that GSK shall not be permitted to deduct royalties payable to Third Parties in an amount that would reduce the royalty rate payable to Liquidia by more than [***] percent ([***]%), subject always to Section 10.5(c)(iv) below. GSK shall have the right to carry forward against royalties payable on the sale of such product in a subsequent calendar quarter any Third Party payment reduction that GSK is unable to take on such product due to such limitation, subject to the limitation set forth in the proviso in the preceding sentence.

For illustrative purposes only of Section 10.5(c)(iii)(B) above, if GSK owes Liquidia a royalty rate of [***] percent ([***]%) of Net Sales on a Product, and also owes a royalty rate of [***] percent ([***]%) of Net Sales to a Third Party, then GSK shall be entitled to deduct from royalties payable to Liquidia an amount equal to [***] percent ([***]%) of Net Sales. If GSK owes Liquidia a royalty rate of [***] percent ([***]%) of Net Sales on a Product, and also owes a royalty rate of [***] percent ([***]%) of Net Sales to a Third Party, then GSK shall be entitled to deduct from royalties payable to Liquidia an amount equal to [***] percent ([***]%) of Net Sales.

(C) Combination Product Limitations. With respect to any Products that are Combinations and that are subject to the provisions of Section 10.5(c)(iii)(B) (i.e. not the first Product launched under this Agreement), GSK shall not deduct royalties due to Third Parties with respect to active ingredients comprising the Combination that (1) are not associated with or contained in the PRINT Material, and (2) have been taken into account in the calculation of Net Sales in accordance with Section 1.109.

(iv) Limitations on Royalty Reductions. Notwithstanding the foregoing, the operation of Sections 10.5(c)(i), (ii) and (iii), individually or in combination, shall not reduce any royalty rate due under Section 10.5(a) (as reduced by conversion to a non-exclusive license pursuant to a Development Delay, if applicable) to less than [***] percent ([***]%) (or [***] percent ([***]%) in the event of conversion to a non-exclusive license pursuant to a Development Delay).

(d) Royalty Reports and Payments. Within sixty (60) days following the end of each calendar quarter, commencing with the calendar quarter in which the First Commercial Sale of any Product is made anywhere in the world, GSK shall provide Liquidia with a report setting forth the Net Sales of each Product on a country-by-country basis and the royalties due on such Products. Concurrent with the delivery of the applicable quarterly report, GSK shall pay in Dollars all amounts due to Liquidia pursuant to Section 10.5 with respect to Net Sales by GSK, its Affiliates and their respective sublicensees for such calendar quarter.

10.6 COGS Payments. If the circumstances set forth in Section 9.2(b)(ii) occur, and GSK or a Third Party is responsible for manufacture of PRINT Materials, Liquidia Respiratory Product, Research Products or Inhaled Products, then GSK would make payments to Liquidia on a quarterly basis, concurrent with the royalty report and payment described in Section 10.5(d), in an amount equal to [***]percent ([***]%) of GSK's COGS solely related to the manufacture of PRINT Materials for the preceding calendar quarter. Such payments shall be made to Liquidia on an Inhaled Product-by-Inhaled Product basis, on up to [***] ([***]) Inhaled Products, and shall commence with the first full calendar quarter in which there are Net Sales of the first Inhaled Product, and quarterly thereafter for a period of [***] ([***]) years.

10.7 Blocked Currency. If at any time legal restrictions within any country in which there are Net Sales of a Product prevent the conversion of the local currency and such currency cannot be removed from such country such that prompt remittance by GSK of any royalties owed in respect of Net Sales in such country is prevented, then GSK shall make payment to Liquidia in the equivalent amount in Dollars.

10.8 Currency; Exchange. All payments under this Agreement shall be made in Dollars by wire transfer of immediately available funds into an account designated in writing by Liquidia. With respect to sales of Products invoiced in Dollars, the Net Sales and the amounts due hereunder will be expressed in Dollars. With respect to sales of Products invoiced in a currency other than Dollars, the Net Sales and amounts due hereunder will be reported in Dollars, calculated using the average exchange rates as calculated and utilized by GSK's group reporting system and published accounts for its own purposes. As of the Effective Date, the method utilized by GSK's group reporting system uses spot exchange rates sourced from Reuters/Bloomberg.

10.9 Late Payments. Any undisputed amount owed by GSK to Liquidia under this Agreement that is not paid on or before the due date shall bear interest at two (2) percentage points over the overnight LIBOR rate in effect on the due date. Where the late payment is caused by Liquidia, including for reasons such as failure to communicate in a timely manner changes to bank details, or failure to respond to communications from GSK regarding the interpretation or dispute of the terms of such payment, then no interest will be payable by GSK.

10.10 Records; Audits. GSK and its Affiliates and sublicensees will maintain complete and accurate records in sufficient detail to permit Liquidia to confirm the accuracy of the calculation of royalties due hereunder. Upon ninety (90) days prior written notice, GSK shall make such records available for examination during regular business hours for a period of three (3) years from the end of the calendar year to which they pertain by an independent certified public accountant selected by Liquidia and reasonably acceptable to GSK, for the sole purpose of verifying the accuracy of the financial reports furnished by GSK pursuant to this Agreement. Such audit right shall not be exercised by Liquidia more than once in any calendar year and the records for a twelve (12) month period may not be audited more than once. All records made available for audit shall be deemed to be Confidential Information of GSK. The results of each audit, if any, shall be binding on both Parties absent manifest error or fraud. Any amounts shown to be owed but unpaid shall be paid within sixty (60) days from receipt by GSK of an invoice from Liquidia based on the accountant's report, plus interest (as set forth in Section 10.9) from the original due date. Liquidia shall bear the full cost of such audit unless such audit discloses an underpayment by GSK of more than five percent (5%) of the amount due, in which case GSK shall bear the full cost of such audit.

10.11 Taxes.

(a) Taxes on Income. Each Party shall be solely responsible for the payment of all taxes imposed on its share of income arising directly or indirectly from the efforts of the Parties under this Agreement.

(b) Cooperation. The Parties agree to cooperate with one another and use reasonable efforts to reduce or eliminate tax withholding or similar obligations in respect of royalties, milestone payments, and other payments made by GSK to Liquidia under this Agreement. To the extent GSK is required to deduct and withhold taxes on any payment to Liquidia, GSK shall pay the amounts of such taxes to the proper Governmental Authority in a timely manner and promptly transmit to Liquidia an official tax certificate or other evidence of such withholding sufficient to enable Liquidia to claim such payment of taxes. Liquidia shall

provide GSK any tax forms that may be reasonably necessary in order for GSK not to withhold tax or to withhold tax at a reduced rate under an applicable bilateral income tax treaty. Each Party shall provide the other with reasonable assistance to enable the recovery, as permitted by applicable Laws, of withholding taxes, value added taxes, or similar obligations resulting from payments made under this Agreement, such recovery to be for the benefit of the Party bearing such withholding tax or value added tax. GSK shall require its sublicensees to cooperate with Liquidia in a manner consistent with this Section 10.11(b).

(c) Taxes Resulting From GSK Action. If GSK is required to make a payment to Liquidia that is subject to a deduction or withholding of tax, then (i) if such withholding or deduction obligation arises as a result of any action by GSK, including any assignment or sublicense or transfer of GSK's obligations, or any failure on the part of GSK to comply with applicable Laws or filing or record retention requirements, that has the effect of modifying the tax treatment of the Parties hereto (a "**GSK Withholding Tax Action**"), then the sum payable by GSK (in respect of which such deduction or withholding is required to be made) shall be increased to the extent necessary to ensure that Liquidia receives a sum equal to the sum which it would have received had no such GSK Withholding Tax Action occurred, and (ii) the sum payable by GSK shall be made to Liquidia after deduction of the amount required to be so deducted or withheld, which deducted or withheld amount shall be remitted to the proper Governmental Authority in accordance with applicable Laws. If Liquidia is able to obtain credit for any taxes for which an additional payment is made by GSK under Section 10.11(c) ("**Creditable Taxes**") against any tax liability otherwise payable by Liquidia in the year in which the GSK Withholding Tax Action takes place or any preceding years, Liquidia shall reimburse to GSK an amount equivalent to the Creditable Taxes (but only to the extent of additional amounts received by Liquidia pursuant to Section 10.11(c)). Liquidia shall provide GSK with evidence as GSK may reasonably request to review the amount of any Creditable Taxes; provided, that Creditable Taxes shall be reasonably determined by Liquidia in good faith and may take into account all other tax attributes and items of Liquidia prior to giving effect to any credit for withholding taxes with respect to payments hereunder. If, with respect to the payments contemplated by this Section 10.11 any taxing authority disallows all or a portion of a claimed credit then GSK will pay Liquidia an amount equal to the disallowed claimed credit.

ARTICLE 11
INTELLECTUAL PROPERTY MATTERS

11.1 Ownership of Existing Intellectual Property. Except as set forth below in Section 11.3 and except as such rights are expressly licensed by one Party to the other Party hereunder, Liquidia shall retain all of its rights, title and interest in and to the Liquidia Technology existing prior to the Effective Date or arising outside of this Agreement and the Vaccine Collaboration Agreement, and GSK shall retain all of its rights, title and interest in and to the GSK Technology existing prior to the Effective Date or arising outside of this Agreement and the Vaccine Collaboration Agreement, and in the case of PRINT Improvements, arising under this Agreement after the Inhaled Collaboration Term.

11.2 Disclosure of Know-How. Each Party shall promptly disclose to the other Party all Joint Inhaled Collaboration Know-How and Liquidia Collaboration Know-How, GSK shall promptly disclose to Liquidia all PRINT Improvements, and Liquidia shall promptly disclose to

GSK all GSK Collaboration Know-How, including any invention disclosures, or other similar documents, submitted to it by its employees, agents or independent contractors describing the inventions to the extent necessary or useful for the preparation, filing and maintenance of any Joint Inhaled Collaboration Patent, Liquidia Patent or GSK Patent hereunder.

11.3 Ownership of Collaboration Inventions. Notwithstanding Section 11.1, the ownership of all Know-How made by either Party (whether alone or jointly with the other Party) during the performance of its obligations under the Inhaled Plan (the "**Collaboration Know-How**") is as follows:

(a) By Liquidia. Liquidia shall solely own all Collaboration Know-How that solely relates to PRINT and PRINT Tooling ("**Liquidia Collaboration Know-How**"). To the extent any Liquidia Collaboration Know-How is made by GSK, whether solely or jointly with Liquidia, then upon Liquidia's request GSK will transfer and assign, and hereby transfers and assigns to Liquidia, without additional consideration, all of GSK's interest in such Liquidia Collaboration Know-How, which transfer and assignment Liquidia hereby accepts. GSK shall execute and deliver to Liquidia a deed(s) of such assignment, in a mutually agreeable form and will take whatever actions reasonably necessary, including the appointment of Liquidia as its attorney in fact solely to make such assignment, to effect such assignment. For clarity, Liquidia Collaboration Know-How shall include Collaboration Know-How that has general applicability to the function of PRINT, such as improvements to the operational aspects of manufacturing PRINT Materials using PRINT, but does not include Collaboration Know-How relating to General Biological Effects.

(b) By GSK. GSK shall solely own all Collaboration Know-How that solely relates to GSK Materials ("**GSK Collaboration Know-How**"). To the extent any GSK Collaboration Know-How is made by Liquidia, whether solely or jointly with GSK, then upon GSK's request Liquidia will transfer and assign and hereby transfers and assigns to GSK, without additional consideration, all of Liquidia's interest in such GSK Collaboration Know-How, which transfer and assignment GSK hereby accepts. Liquidia shall execute and deliver to GSK a deed(s) of such assignment, in a mutually agreeable form and will take whatever actions reasonably necessary, including the appointment of GSK as its attorney in fact solely to make such assignment, to effect such assignment.

(c) Joint Ownership. Any Collaboration Know-How that is not included in either Liquidia Collaboration Know-How or GSK Collaboration Know-How shall be jointly owned by the Parties (**"Joint Inhaled Collaboration Know-How"**). To the extent any Joint Inhaled Collaboration Know-How is made solely by a Party, such Party hereby transfers and assigns to the other Party, without additional consideration, one undivided half of such Party's interest in such Joint Inhaled Collaboration Know-How, which transfer and assignment the other Party hereby accepts. Each Party shall execute and deliver to the other Party a deed(s) of such assignment, in a mutually agreeable form and will take whatever actions reasonably necessary (including the appointment of the other Party as its attorney in fact solely to make such assignment) to effect such assignment. For clarity, Joint Inhaled Collaboration Know-How shall include Collaboration Know-How that relates to General Biological Effects, and Collaboration Know-How that relates to the use of the combination of the PRINT Materials and GSK Materials; provided, that nothing herein shall be construed as requiring GSK to provide, or grant

any rights to Liquidia to, any GSK Materials for purposes of enabling Liquidia's practice of the Joint Inhaled Collaboration Know-How except as may be required to conduct its activities under the Inhaled Plan. Subject to the terms of this Agreement, each Party shall be entitled to practice and exploit the Joint Inhaled Collaboration Know-How without the duty of accounting or seeking consent from the other Party.

11.4 Use and Disclosure of Joint Inhaled Collaboration Know-How.

(a) Subject to Sections 11.4(b) and 11.4(c) below and the Parties' rights and obligations to prepare, file, prosecute and maintain Joint Inhaled Collaboration Patents, GSK Patents or Liquidia Patents hereunder, neither Party shall disclose to, or use with any Third Party (other than as otherwise permitted in this Agreement in connection with each Party's rights and obligations) (i) any Joint Inhaled Collaboration Know-How resulting from the Inhaled Plan before the exercise or expiration of the Inhaled Option; or (ii) any Joint Vaccine Collaboration Know-How resulting from the Vaccine Plan before exercise or expiration of the Vaccine Option under the Vaccine Collaboration Agreement. For clarity, (1) each Party shall have the right to use Joint Inhaled Collaboration Know-How for internal research purposes during the Inhaled Collaboration Term, (2) subject to Section 11.4(b) below, neither Party shall have the right to grant non-exclusive or exclusive licenses to any Third Party for any reason to its interests in the Joint Inhaled Collaboration Know-How during the Inhaled Collaboration Term, and (3) each Party may use (A) Joint Inhaled Collaboration Know-How to perform its obligations under the Vaccine Plan and (B) Joint Vaccine Collaboration Know-How to perform its obligations under the Inhaled Plan.

(b) Liquidia shall have the right to use Joint Inhaled Collaboration Know-How and to disclose Joint Inhaled Collaboration Know-How to Third Parties at any time (provided that any Third Party receiving Joint Inhaled Collaboration Know-How shall be bound by obligations of confidentiality and non-use similar to those contained herein): (i) for the furtherance of its obligations under the BMGF Letter Agreement and the Research Collaboration Agreement between Liquidia and PATH Vaccine Solution ("**PVS**"), dated November 1, 2011 (the "**PVS Agreement**"), as such obligations exist on the Effective Date; (ii) for future agreements with government and Non-Governmental Organizations for purposes of grant funding; provided that no such agreement shall affect the rights granted or obligated to GSK under this Agreement (subject to Section 5.7(b) of the Vaccine Collaboration Agreement); (iii) subject to GSK's right of first negotiation set forth in Section 4.3, for uses other than any vaccines applications and the Inhaled Field to the extent the Joint Collaboration Inhaled Know-How is independently related to General Biological Effects and has broad applicability to therapeutic uses other than vaccines applications or the Inhaled Field as determined by the JPC; and (iv) for internal research purposes with respect to Excluded Applications, Liquidia Retained Product, Liquidia Respiratory Product and other Liquidia products outside the Inhaled Field or Co-Delivery Vaccine Field so long as such product research and development is not conducted with a Third Party.

(c) GSK shall have the right to use any Joint Inhaled Collaboration Know-How or Joint Vaccine Collaboration Know-How in support of the prosecution and maintenance of (i) Patents claiming the Joint Inhaled Collaboration Know-How (the **"Joint Inhaled Collaboration Patents"**) or (ii) Joint Vaccine Collaboration Patents. Notwithstanding Section

11.4(b), Liquidia shall have the right, subject to GSK's consent (not to be unreasonably withheld or delayed) to use any Joint Inhaled Collaboration Know-How or Joint Vaccine Collaboration Know-How in support of the prosecution and maintenance of any Liquidia Patents; provided that if GSK so consents, then Liquidia shall be deemed to have granted and hereby grants to GSK a non-exclusive, royalty free, perpetual, worldwide license, with the right to grant sublicenses through multiple tiers, under any Liquidia Patent, the prosecution of which was supported by Joint Collaboration Inhaled Know-How or Joint Vaccine Collaboration Know-How, including all foreign counterparts of such Liquidia Patent, for use in the Inhaled Field and Co-Delivery Vaccine Field. For clarity, Liquidia shall have the right to use any Liquidia Know-How and Liquidia Collaboration Know-How in support of the prosecution and maintenance of any Liquidia Patents without giving rise to any such license to GSK.

11.5 Prosecution of Patents.

(a) Liquidia Patents.

(i) Subject to the oversight of the JPC, Liquidia shall have the first right to prepare, file, prosecute and maintain all Liquidia Patents at its sole cost and expense. Liquidia shall provide GSK, for its review and comment, with drafts of any material filings or responses to be made to any patent authority with respect to Liquidia Patents at least thirty (30) days in advance of intended submission or as soon as possible if Liquidia has less than thirty (30) days to make such submission, and shall provide GSK with copies of material filings with and communication from patent authorities with respect to Liquidia Patents. Liquidia shall reasonably consider incorporating GSK's comments thereto. Liquidia shall respond to all reasonable requests of GSK for additional Know-How with respect to all such prosecution and maintenance efforts.

(ii) If Liquidia decides to cease the prosecution or maintenance of any claim in a Liquidia Patent, it shall notify GSK in writing sufficiently in advance so that GSK may, at its discretion, assume the responsibility for the prosecution or maintenance of such Liquidia Patent, at GSK's cost and expense. GSK shall notify Liquidia of its decision to assume the responsibility of such prosecution and/or maintenance within thirty (30) days of Liquidia's notice to cease such activities. If, within such time, Liquidia has not received notice of GSK's decision to assume prosecution and maintenance Liquidia shall be free to cease such prosecution and maintenance.

(b) Joint Inhaled Collaboration Patents.

(i) Subject to the oversight of the JPC, GSK shall have the first right to prepare, file, prosecute and maintain any Joint Inhaled Collaboration Patents, at GSK's cost and expense; provided that GSK may credit one half (1/2) of the reasonable cost and expense incurred in connection with the preparation, filing, prosecution and maintenance of any Joint Inhaled Collaboration Patent against any payment due to Liquidia under Section 10.3, 10.4, 10.5, or 10.6. GSK shall provide Liquidia, for its review and comment, with drafts of any material filings or responses to be made to any patent authority with respect to Joint Inhaled Collaboration Patents at least thirty (30) days in advance of intended submission, or as soon as possible if GSK has less than thirty (30) days to make such submission, and shall provide

Liquidia with copies of material filings with and communication from patent authorities with respect to Joint Inhaled Collaboration Patents. Liquidia shall provide comments in due time before the submission date (taking into account the time difference between EST, GMT or CET time zones). GSK shall respond to all reasonable requests of Liquidia for additional Know-How with respect to all such prosecution and maintenance efforts. GSK shall reasonably consider incorporating Liquidia's comments thereto.

(ii) If GSK decides to cease the prosecution or maintenance of any Joint Inhaled Collaboration Patent, it shall notify Liquidia in writing sufficiently in advance so that Liquidia may, at its discretion, assume the responsibility for the prosecution or maintenance of such Joint Inhaled Collaboration Patent, at Liquidia's cost and expense. Liquidia shall notify GSK of its decision to assume the responsibility of such prosecution and/or maintenance within thirty (30) days of GSK's notice to cease such activities. If, within such time, GSK has not received notice of Liquidia's decision to assume prosecution and maintenance, GSK shall be free to cease such prosecution and maintenance.

(c) GSK Patents. GSK shall have the sole and exclusive right to prepare, file, prosecute and maintain GSK Patents.

(d) Cooperation. Each Party shall provide the other Party all reasonable assistance and cooperation, at the prosecuting Party's request, in the patent prosecution efforts provided above in this Section 11.5, including providing any necessary powers of attorney and executing any other required documents or instruments for such prosecution.

11.6 Enforcement of Patents.

(a) Product Infringement. If either Party becomes aware of (i) any existing or threatened infringement or misappropriation by a Third Party of any Joint Inhaled Collaboration Know-How or Joint Inhaled Collaboration Patents, or any Liquidia Patents or Liquidia Know-How, which infringement or misappropriation of such Liquidia Patents or Liquidia Know-How adversely affects or is reasonably expected to adversely affect any Research Product or Product, or (ii) the submission by any Third Party of an application to the FDA, in accordance with the Hatch-Waxman Act or the Biologics Price Competition and Innovation Act of 2009, for approval of a product that such Third Party claims to be equivalent to, or biosimilar or interchangeable with a Product (in either case of (i) or (ii), a **"Product Infringement"**), then it shall promptly notify the other Party in writing and the Parties will consult with each other regarding any actions to be taken with respect to such Product Infringement.

(b) Liquidia Patents.

(i) Except as set forth below in subsection (ii), Liquidia shall have the sole and exclusive right, but not the obligation, to bring an appropriate suit or other action (an **"Action"**) against any person or entity engaged in such Product Infringement of the Liquidia Patents.

(ii) After the First Commercial Sale of a Product, if the only Patents covering or claiming the applicable Product are the Liquidia Patents that are the subject of the

Product Infringement, then GSK shall have the first right, but not the obligation, to bring an Action against any person or entity engaged in such Product Infringement of the Liquidia Patents. If GSK fails to commence such an Action to enforce the applicable Liquidia Patent or to settle or otherwise secure the abatement of such Product Infringement within fourteen (14) days after its receipt or delivery of notice under Section 11.6(a), then Liquidia shall have the right, but not the obligation, to commence an Action to enforce the applicable Liquidia Patent, in which case GSK shall take reasonably appropriate action to enable Liquidia to commence and/or settle such Action.

(iii) The Party bringing the Action (the **"Enforcing Party"**) shall keep the other Party regularly informed of the status and progress of such enforcement efforts and shall reasonably consider the other Party's comments on any such efforts. The non-Enforcing Party shall provide to the Enforcing Party reasonable assistance in such enforcement pursuant to this Section 11.6(b), at the Enforcing Party's reasonable request and expense, including joining the Action as a party plaintiff if required by applicable Laws to pursue such Action.

(iv) Notwithstanding the provisions of 11.6(b)(ii) and (iii) above, if there is a Change of Control of Liquidia and subsequently a Product Infringement occurs with respect to a Product for which the only Patents covering or claiming the applicable Product are the Liquidia Patents that are the subject of the Product Infringement, then GSK and the Acquiror shall discuss whether GSK shall control such Action in accordance with Sections 11.6(b)(ii) and (iii) or whether GSK and the Acquiror shall negotiate a common interest agreement as described below. If the Parties agree to enter into a common interest agreement, then they shall negotiate the terms thereof in good faith as quickly as possible and in any event in a manner that will not prejudice the Action, which terms shall include, *inter alia*, selection of counsel, litigation and technology support services related to the Action, settlement of the Action, and sharing of costs of counsel and litigation and technology support services. GSK and the Acquiror shall reasonably consider the engagement of GSK's preferred legal providers and litigation and technology support services, as well as the advantages to each of GSK and the Acquiror entering into direct retention agreements with such legal counsel. For the avoidance of doubt, if the Acquiror elects not to participate in the Action or negotiate the terms of a common interest agreement, then GSK shall have full control as set forth above under 11.6(b)(ii) and (iii).

(c) Joint Inhaled Collaboration Patents.

(i) GSK shall have the first right, but not the obligation, to bring an Action against any person or entity engaged in a Product Infringement of the Joint Inhaled Collaboration Patents. GSK shall keep Liquidia regularly informed of the status and progress of such enforcement efforts and shall reasonably consider Liquidia's comments on any such efforts. Liquidia shall provide to GSK reasonable assistance in such enforcement pursuant to this Section 11.6(c), at GSK's request and expense, including joining such Action as a party plaintiff if required by applicable Laws to pursue such Action. Liquidia shall be entitled to separate representation in such matter by counsel of its own choice and at its own expense.

(ii) GSK shall have a period of ninety (90) days after its receipt or delivery of notice under Section 11.6(a) to elect to so enforce the Joint Inhaled Collaboration Patents against Product Infringement or to settle or otherwise secure the abatement of such

Product Infringement. If GSK fails to commence an Action to enforce the applicable Joint Inhaled Collaboration Patents or to settle or otherwise secure the abatement of such Product Infringement within such period, then Liquidia shall have the right, but not the obligation, to commence an Action to enforce such Joint Inhaled Collaboration Patents at its own cost and expense. GSK shall take reasonably appropriate actions to enable Liquidia to commence an Action as set forth in the preceding sentence.

(iii) A settlement or consent judgment or other voluntary final disposition of an Action under this Section 11.6(c) may be entered into without the consent of the non-Enforcing Party; provided, that any such settlement, consent judgment or other disposition of any Action by the Enforcing Party under this Section 11.6(c) shall not, without the consent of the non-Enforcing Party, (a) impose any liability or obligation on such non-Enforcing Party, (b) include the grant of any license, covenant or other rights to any Third Party that would conflict with or reduce the scope of the subject matter included under the exclusive licenses granted to such non-Enforcing Party under this Agreement, or (c) conflict with or reduce the scope of the subject matter claimed in any Patent owned (solely or jointly, including Joint Inhaled Collaboration Patents) by the non-Enforcing Party.

(d) Expenses and Recoveries. The Enforcing Party bringing an Action under Section 11.6(b) or 11.6(c) shall be solely responsible for any expenses incurred by such Party as a result of such Action. If such Party recovers monetary damages in such Action, such recovery shall be allocated first to the reimbursement of any expenses incurred by the Parties in such litigation, and any remaining amounts shall be allocated as follows: (i) regardless of which Party is the Enforcing Party, any remaining amounts that represent loss of Net Sales resulting from the Product Infringement shall be included in Net Sales for the relevant Product and subject to the royalty payment by GSK to Liquidia pursuant to Section 10.5, and (ii) all other remaining amounts (including treble damages and punitive damages) shall be shared equally by GSK and Liquidia; provided, that if GSK fails to commence an Action as described in Section 11.6(b)(ii) or 11.6(c)(ii) above and Liquidia subsequently becomes the Enforcing Party, then the remaining amounts described in this Section 11.6(d)(ii) shall be retained by Liquidia.

(e) Other Infringement.

(i) Liquidia shall have the sole and exclusive right to bring an Action against any person or entity engaged in any and all infringement of any Liquidia Patents other than a Product Infringement, in its sole discretion, and shall bear all related expenses and retain all related recoveries.

(ii) GSK shall have the sole and exclusive right to bring an Action against any person or entity engaged in any and all infringement of any GSK Patents, in its sole discretion, and shall bear all related expenses and retain all related recoveries.

11.7 Patents Licensed From UNC. With respect to Liquidia Patents that are Controlled by Liquidia as a result of its exclusive license to such Liquidia Patents under the UNC License Agreement, and for which Liquidia has the right to direct UNC's prosecution thereof under Article 8 of the UNC License Agreement, Liquidia shall cause UNC to file, prosecute, and maintain such Liquidia Patents as reasonably requested by GSK via the JPC in each mutually

agreed country in the Territory, Liquidia's agreement not to be unreasonably withheld. Liquidia shall promptly furnish to GSK upon receipt from UNC or have furnished directly to GSK from UNC copies of all patents, patent applications, substantive patent office actions, and substantive responses received or filed in connection with such patents and patent applications. Liquidia shall cause UNC to reasonably consider and incorporate all input, comments and suggestions of GSK via the JPC on all such patent applications and communications with patent offices, provided that such requests and comments by GSK shall not trigger the license described in Section 11.4(c). Liquidia shall promptly provide notice to GSK as to all matters that come to its attention that may materially affect the preparation, filing, prosecution or maintenance of any such Liquidia Patents by UNC.

11.8 Infringement of Third Party Rights. Subject to Article 13, if any Research Product or Product used or sold by GSK, its Affiliates or sublicensees becomes the subject of a Third Party's claim or assertion of infringement of a Patent of such Third Party with respect to the GSK Materials comprising such Research Product or Product and not the PRINT Materials in such Research Product or Product, then the Party that becomes aware of such claim or assertion shall promptly notify the other Party and GSK shall be solely responsible for the defense of any such infringement claims, at GSK's cost and expense. Subject to Article 13, if any Research Product or Product used or sold by GSK, its Affiliates or sublicensees becomes the subject of any such claim or assertion of infringement of a Third Party patent with respect to the PRINT Materials used in the Research Product or Product, then the Parties shall agree on and enter into a "common interest agreement" wherein the Parties agree to their

shared, mutual interest in the outcome of such potential dispute, and thereafter, the Parties shall promptly meet to consider the claim or assertion and the appropriate course of action, including which Party will have responsibility for the defense of such claim and bear the costs thereof.

11.9 Trademarks. GSK shall have the right to brand the Products using trademarks and trade names it determines appropriate for the Products in its sole discretion, which may vary by country or within a country ("**Product Marks**"); provided, that GSK shall not, and shall ensure that its Affiliates and sublicensees will not make any use of the trademarks or house marks of Liquidia (including Liquidia's corporate name) or any trademark confusingly similar thereto. GSK shall own all rights in the Product Marks and shall register and maintain, at its own cost and expense, the Product Marks in the countries and regions that it determines reasonably necessary. For the avoidance of doubt, Liquidia shall not, and shall ensure that its Affiliates and sublicensees will not make any use of the Product Marks, or any trademarks or house marks of GSK or any of its Affiliates (including GSK's corporate name) or any trademark confusingly similar thereto.

ARTICLE 12
REPRESENTATIONS AND WARRANTIES; COVENANTS

12.1 Mutual Representations and Warranties. Each Party hereby represents and warrants to the other Party as follows:

(a) Corporate Existence. As of the Effective Date, it is a company or corporation duly organized, validly existing, and in good standing under the Laws of the jurisdiction in which it is incorporated.

(b) Corporate Power, Authority and Binding Agreement. As of the Effective Date, (i) it has the corporate power and authority and the legal right to enter into this Agreement and perform its obligations hereunder; (ii) it has taken all necessary corporate action on its part required to authorize the execution and delivery of this Agreement and the performance of its obligations hereunder; and (iii) this Agreement has been duly executed and delivered on behalf of such Party, and constitutes a legal, valid, and binding obligation of such Party that is enforceable against it in accordance with its terms.

12.2 Additional Representations and Warranties of Liquidia. Liquidia represents and warrants to GSK as follows, as of the Effective Date:

(a) It Controls PRINT, PRINT Tooling, PRINT Materials and the Liquidia Technology, and has all rights necessary under the Liquidia Technology to grant the options, licenses and other rights to GSK as purported to be granted pursuant to this Agreement;

(b) It Controls, or has the right to Control, any Patents or Know-How arising from activities conducted by UNC or the Consultant under the UNC Research Agreement, the UNC Material Transfer Agreement and the Consulting Agreement in accordance with the terms of such agreements;

(c) It has not received any written notice from any Third Party asserting or alleging that the development or practice of the Liquidia Technology infringes or misappropriates the intellectual property rights of such Third Party, and to its knowledge, GSK's practice of the rights granted to GSK hereunder do not infringe the intellectual property rights of any Third Party;

(d) There are no pending, and to Liquidia's knowledge, no threatened, adverse actions, suits or proceedings against Liquidia involving any Liquidia Technology;

(e) Except as set forth on Exhibit B, it has not granted any right or license to any Third Party relating to any of the Liquidia Know-How or Liquidia Patents that would conflict with any of the rights or licenses granted to GSK hereunder and prohibit GSK from exercising such rights;

(f) It has disclosed to GSK all material information received by Liquidia concerning the institution of any interference, opposition, reexamination, reissue, revocation, or nullification or any official proceeding involving any Liquidia Patent anywhere in the Territory (for the avoidance of doubt, the phrase "official proceeding" as used herein is not intended to mean ordinary prosecution and maintenance activities);

(g) It has provided GSK with a complete and accurate copy of the UNC License Agreement and UNC Research Agreement, as each such agreement is in effect as of the Effective Date, and Liquidia is not aware of any current material breach of the UNC License Agreement or UNC Research Agreement that would give UNC the right to terminate the same;

(h) To its knowledge, it is not in violation of any Anti-Corruption Laws;

(i) It acknowledges receipt of GSK's "Prevention of Corruption — Third Party Guidelines" which are attached hereto as Exhibit E, and agrees to perform its obligations under the Agreement in accordance with the principles set out therein;

(j) It acknowledges that, in entering into this Agreement, GSK has relied upon information supplied by Liquidia and information which Liquidia has caused to be supplied to GSK by Liquidia's agents and/or representatives regarding PRINT and PRINT Materials, pursuant to the Confidentiality Agreement (all of such information being hereinafter referred to collectively as **"Product Information"**). Liquidia represents and warrants to GSK that, to Liquidia's knowledge, the Product Information provided to GSK in connection with this Agreement is accurate in all material respects. Liquidia further warrants and represents to GSK that it has not, as of the Effective Date, intentionally omitted to furnish GSK with any material information known to Liquidia concerning PRINT or PRINT Materials or the transactions contemplated by this Agreement, which would reasonably be considered to have a materially adverse effect on PRINT, PRINT Materials or the performance of the Inhaled Plan; and

(k) UNC has reviewed the terms of this Agreement and has consented to any inconsistencies between the terms, conditions and limitations of this Agreement and the UNC License Agreement.

12.3 Liquidia Covenant; Mutual Covenants.

(a) No Debarment. In the course of the research or development of the Research Products, each Party shall not use any employee or consultant who has been debarred by any Regulatory Authority, or, to such Party's knowledge, is the subject of debarment proceedings by a Regulatory Authority. Each Party shall notify the other Party promptly upon becoming aware that any of its employees or consultants has been debarred or is the subject of debarment proceedings by any Regulatory Authority.

(b) Compliance. Each Party and its Affiliates shall comply in all material respects with all applicable Laws in the development and commercialization of Research Products and Products and performance of its obligations under this Agreement, including the statutes, regulations and written directives of the FDA, the EMA and any other applicable Regulatory Authority, the FD&C Act, the Prescription Drug Marketing Act, the Federal Health Care Programs Anti-Kickback Law, 42 U.S.C. 1320a-7b(b), the statutes, regulations and written directives of Medicare, Medicaid and all other health care programs, as defined in 42 U.S.C. § 1320a-7b(f), and Anti-Corruption Laws, each as may be amended from time to time.

12.4 Disclaimer. Each Party understands that PRINT Tooling, PRINT, the PRINT Materials, GSK Materials, Research Materials and Research Products are the subject of ongoing research and development and that neither Party can assure the safety or usefulness of PRINT Tooling, PRINT, PRINT Materials, GSK Materials, Research Materials or Research Products. In addition, Liquidia makes no warranties except as set forth in this Article 12 concerning the Liquidia Technology. EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, EACH PARTY SPECIFICALLY DISCLAIMS ANY GUARANTEE THAT THE INHALED PLAN WILL BE SUCCESSFUL, IN WHOLE OR IN PART. EXCEPT AS EXPRESSLY STATED IN THIS AGREEMENT, NO REPRESENTATIONS OR WARRANTIES

WHATSOEVER, WHETHER EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT, OR NON-MISAPPROPRIATION OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS, ARE MADE OR GIVEN BY OR ON BEHALF OF A PARTY, AND ALL REPRESENTATIONS AND WARRANTIES, WHETHER ARISING BY OPERATION OF LAW OR OTHERWISE, ARE HEREBY EXPRESSLY EXCLUDED.

ARTICLE 13
INDEMNIFICATION

13.1 Indemnification by Liquidia. Liquidia shall defend, indemnify, and hold GSK and its Affiliates and their respective officers, directors, employees, and agents (the **"GSK Indemnitees"**) harmless from and against any and all liabilities, damages, losses, costs and expenses including the reasonable fees of attorneys (collectively, **"Losses"**), arising out of or resulting from any Third Party suits, claims, actions, proceedings or demands (**"Claims"**) to the extent that such Claims arise out of, are based on, or result from: (a) the breach of any of Liquidia's obligations under this Agreement, including Liquidia's representations and warranties set forth herein; (b) the willful misconduct or grossly negligent acts of Liquidia, its Affiliates, sublicensees, subcontractors, or the officers, directors, employees, or agents of Liquidia or its Affiliates; (c) the conduct of Liquidia's activities under the Inhaled Plan, and/or the failure to manufacture and supply PRINT Materials and Research Materials in accordance with the terms of this Agreement as required for the conduct of the Inhaled Plan, but only to the extent such activities are not performed by GSK's personnel as described in Section 3.4; (d) the research or development of the Liquidia Respiratory Product conducted negligently by or on behalf of Liquidia (excluding any activities conducted by GSK in the event GSK contributes to the research or development of Liquidia Respiratory Product pursuant to Section 4.1(a)); (e) any inconsistencies between the terms, conditions and limitations of the UNC License Agreement and this Agreement which cause GSK's inability to comply with the provisions of the UNC License Agreement as required therein; or (f) any breach by Liquidia or its Affiliates of the UNC License Agreement or UNC Research Agreement, in each case, not attributable to an act or omission of GSK or its Affiliates, or their respective subcontractors or sublicensees. The foregoing indemnity obligation shall not apply to the extent that (i) the GSK Indemnitees fail to comply with the indemnification procedures set forth in Section 13.3 and Liquidia's defense of the relevant Claims is prejudiced by such failure, or (ii) any Claim that arises from, is based on, or results from any activity set forth in Section 13.2 for which GSK is obligated to indemnify the Liquidia Indemnitees. Indemnification related to the manufacture and supply of clinical supply of PRINT Materials and Research Products shall be provided for in the Development Supply Agreement described in Section 9.1(b) and indemnification related to the manufacture and supply of commercial supply of PRINT Materials and Research Products shall be provided for in the Commercial Supply Agreement, if any, described in Section 9.2.

13.2 Indemnification by GSK. GSK shall defend, indemnify, and hold Liquidia and its Affiliates and their respective officers, directors, employees, and agents (the "**Liquidia Indemnitees**") harmless from and against any and all Losses arising out of or resulting from any Claims to the extent that such Claims arise out of, are based on, or result from: (a) the research, use, development, manufacture, commercialization, handling, storage or other disposition of

PRINT Materials, Research Materials, Liquidia Respiratory Product, Research Products and Inhaled Products by or on behalf of GSK or its Affiliates or its or their sublicensees or subcontractors (other than by Liquidia pursuant to the Inhaled Plan), including Claims based upon product liability and intellectual property infringement, but excluding (i) use of PRINT and PRINT Tooling as transferred to GSK or its Third Party contract manufacturer and used in accordance with written instructions provided by Liquidia and (ii) Liquidia's use of the PRINT Improvements that are licensed by GSK to Liquidia; (b) the breach of any of GSK's obligations under this Agreement, including GSK's representations and warranties set forth herein; (c) the willful misconduct or grossly negligent acts of GSK, its Affiliates or its or their sublicensees or subcontractors, or the officers, directors, employees, or agents of GSK or its Affiliates; or (d) the use by Liquidia of GSK Materials in accordance with handling and other written instructions provided by GSK in performing Liquidia's activities under the Inhaled Plan and the negligent conduct of GSK's activities under the Inhaled Plan. The foregoing indemnity obligation shall not apply to the extent that (i) the Liquidia Indemnitees fail to comply with the indemnification procedures set forth in Section 13.3 and GSK's defense of the relevant Claims is prejudiced by such failure, or (ii) any Claim arises from, is based on, or results from any activity set forth in Section 13.1 for which Liquidia is obligated to indemnify the GSK Indemnitees. Indemnification related to the manufacture and supply of clinical supply of PRINT Materials and Research Products shall be provided for in the Development Supply Agreement described in Section 9.1(b) and indemnification related to the manufacture and supply of commercial supply of PRINT Materials and Research Products shall be provided for in the Commercial Supply Agreement, if any, described in Section 9.2.

13.3 Indemnification Procedures. The Party claiming indemnity under this Article 13 (the "**Indemnified Party**") shall give written notice to the Party from whom indemnity is being sought (the "**Indemnifying Party**") promptly after learning of such Claim. The Indemnified Party shall provide the Indemnifying Party with reasonable assistance, at the Indemnifying Party's expense, in connection with the defense of the Claim for which indemnity is being sought. The Indemnified Party may participate in and monitor such defense with counsel of its own choosing at its sole expense; provided, that the Indemnifying Party shall have the right to assume and conduct the defense of the Claim with counsel of its choice. The Indemnifying Party shall not settle any Claim without the prior written consent of the Indemnified Party, not to be unreasonably withheld. So long as the Indemnifying Party is actively defending the Claim in good faith, the Indemnified Party shall not settle or compromise any such Claim without the prior written consent of the Indemnifying Party. If the Indemnifying Party does not assume and conduct the defense of the Claim as provided above, (a) the Indemnified Party may defend against, consent to the entry of any judgment, or enter into any settlement with respect to such Claim in any manner the Indemnified Party may deem reasonably appropriate (and the Indemnified Party need not consult with, or obtain any consent from, the Indemnifying Party in connection therewith), and (b) the Indemnifying Party shall remain responsible to indemnify the Indemnified Party as provided in this Article 13.

13.4 Limitation of Liability. NEITHER PARTY SHALL BE LIABLE TO THE OTHER FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL, PUNITIVE, OR INDIRECT DAMAGES (INCLUDING ANY LOSS OF PROFITS, EARNINGS, GOODWILL, SAVINGS OR BUSINESS SUFFERED BY LIQUIDIA OR GSK) ARISING FROM OR

RELATING TO ANY BREACH OF THIS AGREEMENT, REGARDLESS OF ANY NOTICE OF THE POSSIBILITY OF SUCH DAMAGES. NOTWITHSTANDING THE FOREGOING, NOTHING IN THIS SECTION 13.4 IS INTENDED TO OR SHALL LIMIT OR RESTRICT THE INDEMNIFICATION RIGHTS OR OBLIGATIONS OF ANY PARTY UNDER SECTION 13.1 OR 13.2, OR DAMAGES AVAILABLE FOR A PARTY'S BREACH OF CONFIDENTIALITY OBLIGATIONS IN ARTICLE 14.

13.5 Insurance. Each Party shall procure and maintain insurance, or in GSK's case, self-insure, consistent with normal business practices of prudent companies similarly situated at all times during the Term of this Agreement. It is understood that such insurance shall not be construed to create a limit of either Party's liability with respect to its indemnification obligations under this Article 13. Each Party shall provide the other Party with written evidence of such insurance upon request. Each Party shall provide the other Party with written notice at least thirty (30) days prior to the cancellation, non-renewal or material change in such insurance.

ARTICLE 14
CONFIDENTIALITY

14.1 Confidentiality. Each Party agrees that, during the Term and for a period of five (5) years thereafter, it shall keep confidential and shall not publish or otherwise disclose and shall not use for any purpose other than as provided for in this Agreement (which includes the exercise of any rights or the performance of any obligations hereunder) any Confidential Information furnished to it by the other Party pursuant to this Agreement, except to the extent expressly authorized by this Agreement or otherwise agreed in writing by the Parties. The foregoing confidentiality and non-use obligations shall not apply to any portion of the other Party's Confidential Information that the receiving Party can demonstrate by competent written proof:

(a) was already known to the receiving Party or its Affiliate, other than under an obligation of confidentiality, at the time of disclosure by the other Party;

(b) was generally available to the public or otherwise part of the public domain at the time of its disclosure to the receiving Party;

(c) became generally available to the public or otherwise part of the public domain after its disclosure and other than through any act or omission of the receiving Party in breach of this Agreement;

(d) was disclosed to the receiving Party or its Affiliate on a non-confidential basis by a Third Party who has a legal right to make such disclosure and who did not obtain such information directly or indirectly from the other Party; or

(e) was independently discovered or developed by the receiving Party or its Affiliate without access to or aid, application or use of the other Party's Confidential Information, as evidenced by written records made contemporaneous with such discovery or development and kept in the ordinary course of business, or other similar documentary proof of actual knowledge by the receiving Party.

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

Notwithstanding the definition of "Confidential Information" in Article 1, all Collaboration Know-How, whether generated by one or both Parties, shall be owned by a Party or the Parties in accordance with Section 11.3. In addition, the exceptions set forth in subsections (a) and (e) shall not apply to Collaboration Know-How, which shall be deemed Confidential Information of the Party that owns such Collaboration Know-How regardless of whether such Collaboration Know-How satisfies the criteria set forth in one or both subsections.

14.2 Authorized Disclosure. Notwithstanding the obligations set forth in Section 14.1, a Party may disclose the other Party's Confidential Information to the extent:

(a) such disclosure is reasonably necessary (i) for the filing or prosecuting Patents as contemplated by this Agreement; (ii) to comply with the requirements of Regulatory Authorities with respect to obtaining and maintaining Regulatory Approval of a Product; or (iii) for prosecuting or defending litigation as contemplated by this Agreement;

(b) such disclosure is reasonably necessary to its employees, agents, consultants, contractors, licensees or sublicensees on a need-to-know basis for the sole purpose of performing its obligations or exercising its rights under this Agreement; provided that in each case, the disclosees are bound by written obligations of confidentiality and non-use consistent with those contained in this Agreement;

(c) such disclosure (including the terms of this Agreement) is reasonably necessary to any bona fide potential or actual investor, acquiror, merger partner, licensee or other financial or commercial partner for the sole purpose of evaluating an actual or potential investment, acquisition or other business relationship; provided that in connection with such disclosure, such Party shall inform each Third Party to whom Confidential Information is disclosed of the confidential nature of such Confidential Information and cause each such Third Party to treat such Confidential Information as confidential; or

(d) such disclosure is reasonably necessary to comply with applicable Laws, including regulations promulgated by applicable security exchanges, court order, administrative subpoena or order.

Notwithstanding the foregoing, in the event a Party is required to make a disclosure of the other Party's Confidential Information pursuant to Section 14.2(a) or 14.2(d), such Party shall promptly notify the other Party such required disclosure and shall use reasonable efforts to obtain, or to assist the other Party in obtaining, a protective order preventing or limiting the required disclosure.

14.3 Technical Publication. Neither Party may publish peer reviewed manuscripts, or give other forms of public disclosure such as abstracts and presentations, of results of studies carried out under the Inhaled Plan, without the opportunity for prior review by the other Party, except to the extent required by applicable Laws. A Party seeking publication shall provide the other Party the opportunity to review and comment on any proposed publication that contains the results of studies carried out under the Inhaled Plan at least sixty (60) days prior to its intended submission for publication; provided, that Liquidia shall not have the right to publish any information or material relating to Inhaled Products, Research Products, Research Materials,

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

GSK Materials, or any results of studies carried out by or on behalf of GSK outside the scope of the Inhaled Plan, without GSK's prior consent. The other Party shall provide the Party seeking publication with its comments in writing, if any, within thirty (30) days after receipt of such proposed publication. The Party seeking publication shall consider in good faith any comments thereto provided by the other Party and shall comply with the other Party's request to remove any and all of such other Party's Confidential Information from the proposed publication. In addition, the Party seeking publication shall delay the submission for a period up to sixty (60) days after the other Party's receipt of the proposed publication in the event that the other Party can demonstrate reasonable need for such delay, including the preparation and filing of a patent application. If the other Party fails to provide its comments to the Party seeking publication within such thirty (30) day period, such other Party shall be deemed not to have any comments, and the Party seeking publication shall be free to publish in accordance with this Section 14.3 after the sixty (60) day period has elapsed. The Party seeking publication shall provide the other Party a copy of the manuscript at the time of the submission. Each Party agrees to acknowledge the contributions of the other Party and its employees in all publications as scientifically appropriate. For the avoidance of doubt, GSK shall not be required to seek Liquidia's review of publications that contain results of studies carried out by or on behalf of GSK outside the scope of the Inhaled Plan. In addition to the foregoing, to the extent Liquidia receives a proposed public disclosure or publication from UNC in accordance with Section 2.2 of the UNC License Agreement or Section 6 of the UNC Research Agreement, then Liquidia shall ensure that GSK is given the opportunity to review and possibly delay such public disclosure or publication in order to protect Liquidia Know-How that may be disclosed in such public disclosure or publication in accordance with the terms of the UNC License Agreement.

14.4 Publicity; Terms of this Agreement.

(a) The Parties agree that the terms of this Agreement are the Confidential Information of both Parties, subject to the special authorized disclosure provisions set forth in this Section 14.4.

(b) On or after the Effective Date, Liquidia shall have the right to issue a public announcement of the execution of this Agreement, in the form agreed by the Parties as of the Effective Date.

(c) Except for the public announcement described in Section 14.4(b), neither Party nor such Party's Affiliates will make any public announcements, press releases, regulatory filing or other public disclosures, written or oral, whether to the public, the press, stockholders or otherwise, concerning this Agreement or the terms or the subject matter hereof, the performance hereof or the Parties' activities hereunder, or any results or data arising hereunder (a **"Public Statement"**), except: (i) with the prior written consent of the other Party (such consent not to be unreasonably delayed or withheld but may be conditional upon certain restrictions as to the content and/or distribution of such Public Statement to ensure consistency with GSK's policies, including GSK's standards for Scientific Engagement); or (ii) for such Public Statements, as in the opinion of the counsel for the Party intending to make such Public Statement, are required to comply with applicable Laws (including the regulations of any stock exchange) (a **"Legal Requirement"**) and which in any event contain only the minimum disclosure necessary to comply with the relevant Legal Requirement.

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

(d) Each Party agrees to provide the other Party with a copy of any proposed Public Statement as soon as reasonably practicable under the circumstances prior to its scheduled release. Each Party shall provide the other with an advance copy of any such Public Statement at least seven (7) days prior to its scheduled release; provided, that if the Party proposing such Public Statement cannot provide the reviewing Party with seven (7) days notice due to extraordinary circumstances, such Party will use reasonable efforts to provide the reviewing Party with the proposed Public Statement for comment at least forty-eight (48) hours before release. Each Party furthermore shall have the right to review and recommend changes to any such Public Statement and, except as otherwise required by Legal Requirement, the Party whose Public Statement has been reviewed shall remove any Confidential Information of the reviewing Party that the reviewing Party reasonably deems to be inappropriate for disclosure.

(e) In addition to the foregoing each Party agrees to give the other Party a reasonable opportunity (to the extent consistent with Legal Requirements) to review all Public Statements required by Legal Requirements to be filed with the SEC or similar body prior to submission of such filings, and will give due consideration to any reasonable comments by the non-filing Party relating to such filing, including the provisions of this Agreement for which confidential treatment should be sought.

14.5 Clinical Trial Register. Notwithstanding anything in this Article 14, GSK shall have the right to publish summaries of data and results from any human clinical trials conducted under this Agreement on its clinical trials registry or on a government-sponsored database such as www.clinicaltrials.gov or other publicly available websites such as www.clinicalstudyresults.org, without requiring the consent of Liquidia. The Parties shall reasonably cooperate if needed in order to ensure the publication of any such summaries of human clinical trials data and results as required on GSK's clinical trial registry and any government-sponsored database such as clinicaltrials.gov or other publicly available websites such as www.clinicalstudyresults.org.

14.6 Equitable Relief. Each Party acknowledges that its breach of this Article 14 may cause irreparable harm to the other Party, which cannot be reasonably or adequately compensated in monetary damages. Therefore, each Party agrees that the other Party shall be entitled, in addition to any other remedies it may have under this Agreement or otherwise, to seek preliminary and permanent injunctive and other equitable relief to prevent or curtail any actual or threatened breach of the obligations relating to Confidential Information set forth in this Article 14 by the other Party.

ARTICLE 15
TERM AND TERMINATION

15.1 Term. This Agreement shall become effective on the Effective Date and, unless earlier terminated pursuant to this Article 15, shall remain in effect (the "**Term**"):

(a) in the Liquidia Respiratory Field, (i) if GSK does not timely exercise the Liquidia Respiratory Option, then until the expiration of the Liquidia Respiratory Option; or (ii) if GSK timely exercises the Liquidia Respiratory Option, on a country-by-country basis, until the expiration of the Royalty Term of such Liquidia Respiratory Product in such country; and

(b) in the Inhaled Field, (i) if GSK does not timely exercise the Inhaled Option, then until the expiration of the Inhaled Option; or (ii) if GSK timely exercises the Inhaled Option, on an Inhaled Product-by-Inhaled Product and country-by-country basis, until the expiration of the Royalty Term of such Inhaled Product in such country.

For clarity, if GSK does not timely exercise any option, this Agreement shall expire in its entirety upon the expiration of the last-to-expire option. In addition, in the event the Inhaled Option or Liquidia Respiratory Option are exercised under this Agreement, then upon expiration of all applicable Royalty Terms for Inhaled Products and the Liquidia Respiratory Product, as applicable, GSK shall have a perpetual, fully-paid, royalty-free right and license, with the right to grant sublicenses, under the Liquidia Technology, Joint Inhaled Collaboration Know-How, Joint Inhaled Collaboration Patents and Liquidia's interest in and to the Joint Vaccine Collaboration Know-How and Joint Vaccine Collaboration Patents to make, have made, use, sell, offer to sell and import such Inhaled Product or Liquidia Respiratory Product, as the case may be, in the applicable Exercised Field.

15.2 Termination by GSK for Convenience. GSK may terminate this Agreement in its entirety, on a Research Product-by-Research Product basis, or on a Product-by-Product basis for any reason upon at least one hundred twenty (120) days prior written notice to Liquidia.

15.3 Termination for Breach. Each Party shall have the right to terminate this Agreement in its entirety, on a Research Product-by-Research Product basis, or on a Product-by-Product basis immediately upon written notice to the other Party if the other Party materially breaches its obligations under this Agreement and, after receiving written notice identifying such material breach in reasonable detail, fails to cure such material breach within ninety (90) days from the date of such notice (or within thirty (30) days from the date of such notice in the event such material breach is solely based on the breaching Party's failure to pay any amounts due hereunder). For clarity, a material breach in connection with the Liquidia Respiratory Product or an Inhaled Product, respectively, will not be considered a material breach in connection with an Inhaled Product or the Liquidia Respiratory Product, respectively, and further, a material breach under the Vaccine Collaboration Agreement or this Agreement, respectively, will not affect or be deemed to be a material breach of this Agreement or the Vaccine Collaboration Agreement, respectively. For clarity, failure of the Parties to achieve the objectives and goals of the Inhaled Plan due primarily to technical or scientific infeasibility, for example, with respect to creating the PRINT Materials or Research Materials contemplated under the Inhaled Plan will not be deemed to be a material breach of the Agreement by either Party under this Section 15.3; provided, that such exclusion from breach does not include failure of either Party to diligently perform their obligations as described in this Agreement and under the Inhaled Plan.

15.4 Termination for Bankruptcy. Each Party shall have the right to terminate this Agreement in its entirety immediately upon written notice to the other Party upon such other Party's filing or institution of bankruptcy, reorganization, liquidation or receivership proceedings, or upon an assignment of a substantial portion of the assets for the benefit of creditors by such other Party; provided however that in the case of involuntary bankruptcy proceeding such right to terminate shall only become effective if such other Party consents to the involuntary bankruptcy or such proceeding is not dismissed within sixty (60) days after its filing. In connection therewith, all rights and licenses granted under or pursuant to any section of this

Agreement are and shall otherwise be deemed to be for purposes of Section 365(n) of Title 11, United States Code (the **"Bankruptcy Code"**) licenses of rights to "intellectual property" as defined in Section 101(56) of the Bankruptcy Code. The Parties shall retain and may fully exercise all of their respective rights and elections under the Bankruptcy Code. Upon the bankruptcy of any Party, the non-bankrupt Party shall further be entitled to a complete duplicate of, or complete access to, any such intellectual property, and such, if not already in its possession, shall be promptly delivered to the non-bankrupt Party, unless the bankrupt Party elects to continue, and continues, to perform all of its obligations under this Agreement.

15.5 Effects of Termination. Upon any termination or expiration of this Agreement, each Party shall have the right to practice and/or license its interest in the Joint Inhaled Collaboration Know-How as joint owner, without any requirement of gaining the consent of, or accounting to, the other Party.

(a) The following consequences shall apply only in the event of termination by GSK pursuant to Section 15.2 or by Liquidia pursuant to Section 15.3 or expiration of this Agreement pursuant to Section 15.1(a)(i) or 15.1(b)(i), as applicable:

(i) Liquidia Respiratory Product. The following shall apply with respect to termination by GSK pursuant to Section 15.2 or by Liquidia pursuant to Section 15.3, in either case, in connection with termination of the Agreement solely with respect to the Liquidia Respiratory Product or the Agreement in its entirety. If GSK has exercised the Liquidia Respiratory Option prior to such termination, then GSK's Liquidia Respiratory License shall terminate and the following shall apply:

(A) License. GSK hereby grants to Liquidia, effective only upon such termination and subject to any terms of Third Party agreements, an exclusive, worldwide, sublicenseable (through multiple tiers) license under the GSK Respiratory Technology to make, have made, use, import, offer for sale and sell the Liquidia Respiratory Product. For the purpose of this Section 15.5(a)(i), "**GSK Respiratory Technology**" means Know-How Controlled by GSK that is solely related to the Liquidia Respiratory Product and used by or on behalf of GSK in connection with GSK's development or commercialization of the Liquidia Respiratory Product as of the effective date of termination, and Patents claiming such Know-How including any Know-How or Patents Controlled by GSK that claim or cover any technology including devices or delivery technologies. In addition, the license granted by GSK to Liquidia under PRINT Improvements under Section 5.5(b) shall continue and shall be expanded to include uses in the Liquidia Respiratory Field.

(B) Royalties. Liquidia shall pay to GSK royalty payments (the **"Reversion Royalties"**) on net sales of the Liquidia Respiratory Product in the Territory at a royalty rate of [***] percent ([***]%) for each development stage (set forth in the table below) that GSK has advanced the Liquidia Respiratory Product from the time of the exercise of the Liquidia Respiratory Option to the effective date of termination. By way of example, if GSK exercises the Liquidia Respiratory Option before the first dosing of the Liquidia Respiratory Product in the first Phase I Clinical Trial, and this Agreement is terminated after the first dosing of the Liquidia Respiratory Product in the first Phase II Clinical Trial but prior to first dosing of the Liquidia Respiratory Product in the first Phase III Clinical Trial, then GSK has advanced the

Liquidia Respiratory Product by two (2) stages and the royalty rate shall be [***] percent ([***]%).

Development stage of Liquidia Respiratory Product

First dosing in the first Phase I Clinical Trial but prior to first dosing in the first Phase II Clinical Trial

First dosing in the first Phase II Clinical Trial but prior to first dosing in the first Phase III Clinical Trial

First dosing in the first Phase III Clinical Trial but prior to first MAA approval in any of the Major EU Markets, United States or Japan with a product label acceptable to Liquidia in its sole discretion

First MAA approval in any of the Major EU Markets, United States or Japan with a product label acceptable to Liquidia in its sole discretion

The Reversion Royalties due to GSK as set forth above with respect to the Liquidia Respiratory Product shall be paid on a country-by-country basis, commencing upon the First Commercial Sale of the Liquidia Respiratory Product in a particular country and expiring upon the date that is ten years after the First Commercial Sale of the Liquidia Respiratory Product in such country. The terms of Sections 10.5(d), 10.7, 10.8, 10.9, 10.10 and 10.11 shall apply *mutatis mutandis* to the payment of such Reversion Royalties to GSK.

(C) Regulatory Materials; Data. To the extent legally permissible, GSK shall transfer and assign to Liquidia, at no cost to Liquidia, all Regulatory Materials and Regulatory Approvals for the Liquidia Respiratory Product, as well as all data from non-clinical and clinical studies conducted by or on behalf of GSK, its Affiliates or sublicensees on the Liquidia Respiratory Product and all pharmacovigilance data (including all adverse event database) on the Liquidia Respiratory Product.

(D) Trademarks. GSK shall transfer and assign to Liquidia, at GSK's expense, all Product Marks for the Liquidia Respiratory Product (excluding any such marks that include, in whole or part, any corporate name or logos of GSK or its Affiliates or sublicensees or any other mark or trade dress that is generally used for or is substantially similar to other products in GSK's portfolio).

(E) Transition Assistance. Upon Liquidia's request, and to the extent permissible, GSK shall assign to Liquidia any sublicenses for the Liquidia Respiratory Product and any agreements or arrangement with Third Party vendors pertaining to the development or manufacture of the Liquidia Respiratory Product, and shall provide reasonable technical assistance in transferring the GSK Respiratory Technology to Liquidia or its designee at costs to be shared equally by GSK and Liquidia.

(F) Clinical Trials. If at the time of such termination, GSK is

conducting any clinical trials for the Liquidia Respiratory Product, then, at Liquidia's election on a trial-by-trial basis, and in accordance with applicable Laws and GSK's policies applicable to the conduct or stoppage of clinical trials: (A) GSK shall fully cooperate with Liquidia to transfer the conduct of all such clinical trials to Liquidia and Liquidia shall assume any and all liability (including costs) for such clinical trials after the effective date of such termination, except that GSK shall continue to bear all costs and expenses incurred in connection with the conduct of such clinical trial until the earlier of the completion of such trial or thirty (30) days after the effective date of such termination; or (B) GSK shall orderly wind down the conduct of any such clinical trial which is not assumed by Liquidia under clause (A). In each case GSK shall reimburse Liquidia for any non-cancellable and non-refundable out-of-pocket costs Liquidia may incur in connection with the conduct or wind down of all such clinical trials as of the effective date of such termination.

(ii) Inhaled Products. The following shall apply with respect to termination by GSK pursuant to Section 15.2 or by Liquidia pursuant to Section 15.3, in either case, in connection with termination of the Agreement solely on an Inhaled Product-by-Inhaled Product (or Research Product-by-Research Product, as applicable) basis or the Agreement in its entirety. If GSK has exercised the Inhaled Option prior to such termination, then GSK's Inhaled License shall expire with respect to the terminated Inhaled Product (or Research Product, if applicable) and the following shall apply:

(A) Upon Liquidia's request, GSK shall provide Liquidia with copies of Regulatory Materials, pharmacovigilance data and Joint Inhaled Collaboration Know-How not already in Liquidia's possession, related to the PRINT Materials used in connection with the Inhaled Products (or Research Products, as applicable). All such Regulatory Materials, Joint Inhaled Collaboration Know-How and other data may be redacted by GSK with respect to anything contained therein that is related to the GSK Materials. Liquidia shall have the non-exclusive right to use and reference such Regulatory Materials, Know-How and other data. Nothing herein shall be construed as requiring GSK to provide to Liquidia, or grant any rights to Liquidia, to any materials, Know-How, data, information or the like of any kind whatsoever relating to GSK Materials or delivery technologies.

(B) In addition, solely in the case of termination of the Agreement in its entirety, the license granted by GSK to Liquidia under PRINT Improvements under Section 5.5(b) shall continue and shall be expanded to include the Inhaled Field.

(iii) Joint Inhaled Collaboration Patents; Confidential Information. The following shall apply with respect to either (A) termination of the Agreement in its entirety by GSK pursuant to Section 15.2, (B) termination of the Agreement in its entirety by Liquidia pursuant to Section 15.3, or (C) expiration in both the Liquidia Respiratory Field and Inhaled Field pursuant to Sections 15.1(a)(i) and 15.1(b)(i) respectively, and either (X) termination of the Vaccine Collaboration Agreement in its entirety by GSK pursuant to Section 15.2 of the Vaccine Collaboration Agreement, (Y) termination of the Vaccine Collaboration Agreement in its entirety by Liquidia pursuant to Section 15.3 of the Vaccine Collaboration Agreement, or (Z) expiration in the Co-Delivery Vaccine Field pursuant to Section 15.1(a)(i) of the Vaccine Collaboration Agreement: Liquidia shall have the right, but not the obligation, to assume the responsibility for the prosecution and maintenance of Joint Inhaled Collaboration Patents, at Liquidia's cost and

expense. GSK shall provide Liquidia with all assistance and cooperation as reasonably necessary for Liquidia to assume such responsibility, at Liquidia's expense. Thereafter, Liquidia shall provide GSK, for its review and comment, with drafts of any material filings or responses to be made to any patent authority with respect to Joint Inhaled Collaboration Patents at least ten (10) Business Days in advance of intended submission, and shall provide GSK with copies of material filings made with, and communication received from, patent authorities with respect to Joint Inhaled Collaboration Patents. Liquidia shall reasonably consider incorporating GSK's comments thereto. For the avoidance of doubt, each Party shall have the right to practice and/or license the Joint Inhaled Collaboration Know-How as joint owner, without any requirement of gaining the consent of, or accounting to, the other Party and may use it for any purpose. In addition, GSK shall return to Liquidia, and cease using, all Confidential Information of Liquidia.

(b) The following consequences shall apply only in the event of termination by GSK pursuant to Section 15.3:

(i) Termination During Inhaled Collaboration Term. If GSK terminates the Agreement pursuant to Section 15.3 during the Inhaled Collaboration Term, then:

(A) GSK shall retain (1) the license granted in Section 5.1, (2) the right to exercise the Liquidia Respiratory Option, to the extent not exercised as of the date of termination, and the Inhaled Option, pursuant to the terms of this Agreement except that (a) if Liquidia's breach caused a Development Delay, then the period of time during which GSK shall be entitled to exercise the Inhaled Option shall be extended by twelve (12) months, and (b) the option fee payable by GSK pursuant to Section 10.3(b) will be reduced by [***] percent ([***]%), and (3) to the extent that the Liquidia Respiratory Option has been exercised, the Liquidia Respiratory License granted prior to termination of the Agreement shall survive.

(B) Liquidia shall return to GSK, and cease using all Confidential Information of GSK except as required to continue its obligations set forth in this Section 15.5(b)(i).

(C) The JPC and Advisory Council shall continue on the terms provided in this Agreement.

(D) The following payment provisions will apply: GSK shall make milestone payments to Liquidia under Section 10.4(a) at [***] percent ([***]%) of the amounts set forth therein, when and if they become due, and shall pay Liquidia royalties in accordance with Section 10.5.

(E) Liquidia's right to convert the Inhaled License to non-exclusive in the event of a Development Delay shall terminate and be of no further force and effect.

(F) Sections 9.1(a), 9.1(b) and 9.2(a) shall continue to govern the manufacture and supply of PRINT Materials, Research Materials, Liquidia Respiratory Product, Research Products and/or Inhaled Products as set forth therein, including the technology transfer of PRINT and/or PRINT Tooling.

(G) The obligations and limitations applicable to Liquidia set forth in Sections 7.1, 11.4(b) and 4.3 shall survive.

(H) GSK's obligation to use Commercially Reasonable Efforts under Sections 6.2 (as amended by this Section 15.5(b)(i)) and 8.1 shall survive only upon the occurrence of a material breach by Liquidia that is not by its nature curable and is not the result of Liquidia's purposeful or willful acts or omissions. For clarity, GSK's obligation to use Commercially Reasonable Efforts under Sections 6.2 (as amended by this Section 15.5(b)(i)) and 8.1 shall not survive upon the occurrence of a material breach by Liquidia that either (1) is by its nature curable, whether

or not the result of Liquidia's purposeful or willful acts or omissions, but that Liquidia does not cure in accordance with Section 15.3, or (2) is not curable, and is the result of Liquidia's purposeful or willful acts or omissions.

(ii) Termination After Exercise of Inhaled Option. If GSK terminates the Agreement pursuant to Section 15.3 after GSK's exercise of the Inhaled Option, then:

(A) GSK shall retain the Inhaled License as provided in this Agreement, subject to the remainder of this Section 15.5(b)(ii).

(B) Liquidia shall return to GSK, and cease using all Confidential Information of GSK except as required to continue its obligations set forth in this Section 15.5(b)(ii).

(C) At GSK's option, the JPC and Advisory Council will continue as provided in this Agreement.

(D) The following payment provisions will apply: GSK shall make milestone payments to Liquidia under Section 10.4(a) at [***] percent ([***]%) of the amounts set forth therein, when and if they become due, and shall pay Liquidia royalties in accordance with Section 10.5.

(E) Liquidia's right to convert the Inhaled License to non-exclusive in the event of a Development Delay shall terminate and be of no further force and effect.

(F) Sections 9.1(b) and 9.2(a) shall continue to govern the manufacture and supply of PRINT Materials, Liquidia Respiratory Product, Research Products and/or Inhaled Products as set forth therein, including the technology transfer of PRINT and/or PRINT Tooling.

(G) The obligations and limitations applicable to Liquidia set forth in Section 7.1 shall survive.

(H) GSK's obligation to use Commercially Reasonable Efforts under Sections 6.2 (as amended by this Section 15.5(b)(i)) and 8.1 shall survive only upon the occurrence of a material breach by Liquidia that is not by its nature curable and is not the result

of Liquidia's purposeful or willful acts or omissions. For clarity, GSK's obligation to use Commercially Reasonable Efforts under Sections 6.2 (as amended by this Section 15.5(b)(i)) and 8.1 shall not survive upon the occurrence of a material breach by Liquidia that either (1) is by its nature curable, whether or not the result of Liquidia's purposeful or willful acts or omissions, but that Liquidia does not cure in accordance with Section 15.3, or (2) is not curable, and is the result of Liquidia's purposeful or willful acts or omissions.

15.6 Survival. Termination or expiration of this Agreement shall not affect any rights or obligations of the Parties under this Agreement that have accrued prior to the date of termination or expiration. Notwithstanding anything to the contrary, the following provisions shall survive any expiration or termination of this Agreement: Sections 5.3, 5.6, 5.5(b), 7.5 (solely with respect to Product sold under this Agreement prior to the effective date of termination), 10.2 — 10.11 (solely with respect to payments accrued prior to the effective date of termination, and if the Agreement is terminated by GSK pursuant to Section 15.3, payments due to Liquidia after the termination as amended by Section 15.5(b) if applicable), 11.1, 11.3, 11.5(b) (in the event of expiration of the Agreement only), 15.5 (as applicable), and 15.6, and Articles 1, 13, 14, 16, and 17. In addition, Sections 7.2, 7.3, 7.4, 7.5, and 15.3 and 15.5(a) shall survive any termination of this Agreement with respect to any obligations under this Agreement that survive such termination.

ARTICLE 16
DISPUTE RESOLUTION

16.1 Disputes. The Parties recognize that disputes as to certain matters may from time to time arise that relate to either Party's rights and/or obligations hereunder. It is the objective of the Parties to establish procedures to facilitate the resolution of disputes arising under this Agreement in an expedient manner by mutual cooperation. To accomplish this objective, the Parties agree to follow the procedures set forth in this Article 16 to resolve any controversy or claim arising out of, relating to or in connection with any provision of this Agreement, if and when a dispute arises under this Agreement.

16.2 Internal Resolution. With respect to all disputes arising between the Parties under this Agreement, including any alleged breach under this Agreement or any issue relating to the interpretation or application of this Agreement, if the Parties are unable to resolve such dispute within thirty (30) days after such dispute is first identified by either Party in writing to the other, the Parties shall refer such dispute to the Executive Officers of the Parties for attempted resolution by good faith negotiations within thirty (30) days after such notice is received by or referred to the Executive Officers.

16.3 Third Party Mediation. Any dispute remaining unresolved after escalation to the Executive Officers pursuant to Section 16.2 shall first be submitted to mediation in accordance with the Mediation Procedure of the International Institute for Conflict Prevention and Resolution ("**CPR**"). Such mediation shall be attended on behalf of each Party for at least one session by a senior executive with authority to resolve the dispute and shall be held in New York City, New York. Unless otherwise agreed by the Parties, the Parties shall select a mediator from the CPR Panels of Distinguished Neutrals. Notwithstanding the foregoing, each Party has the right to pursue provisional relief from any court, such as attachment, preliminary injunction

or replevin to avoid irreparable harm, maintain the status quo, or preserve the subject matter of the dispute, prior to the commencement of, or while the Parties are engaged in, the mediation process pursuant to Section 16.5. Any dispute that cannot be resolved by mediation within sixty (60) days of notice by one Party to the other Party of the commencement of the mediation process shall be resolved by arbitration in accordance Section 16.4.

16.4 Dispute Resolution. If the Parties are not able to resolve a dispute referred to them under Section 16.2 and subject to mediation as set forth in Section 16.3, then subject to Section 16.5, such dispute shall be finally resolved by final and binding arbitration conducted in accordance with the terms of this Section 16.4. The arbitration will be held in New York City, New York according to Rules of Arbitration of the International Chamber of Commerce ("**ICC**"). The arbitration will be conducted by a single arbitrator with significant experience in the pharmaceutical industry, unless otherwise agreed by the Parties, appointed by ICC within fifteen (15) days after commencement of the arbitration in accordance with applicable ICC rules. Any arbitration herewith will be conducted in the English language. The arbitrator will be instructed not to award any punitive or special damages and will render a written decision no later than six (6) months following the selection of the arbitrator, including a basis for any damages awarded and a statement of how the damages were calculated. Any award will be promptly paid in Dollars free of any tax, deduction or offset. Each Party agrees to abide by the award rendered in any arbitration conducted pursuant to this Section 16.4. With respect to money damages, nothing contained herein will be construed to permit the arbitrator or any court or any other forum to award punitive or exemplary damages. Each Party will pay its legal fees and costs related to the arbitration (including witness and expert fees); provided, that the arbitrator shall be authorized to determine whether a Party is the prevailing Party, and if so, to award to that prevailing Party reimbursement for its reasonable attorneys' fees, costs and disbursements. All proceedings and decisions of the arbitrator shall be deemed Confidential Information of each of the Parties, and shall be subject to Article 14. From the date of submission of the dispute to the Executive Officers in Section 16.2, until such time as the dispute has become finally settled, the running of the time periods as to which a Party alleged to have breached the Agreement must cure such breach becomes suspended as to any breach that is the subject matter of the dispute. Judgment on the award so rendered will be final and may be entered in any court having jurisdiction thereof.

16.5 Equitable Relief. Nothing in this Article 16 will preclude either Party from seeking equitable relief or interim or provisional relief from a court of competent jurisdiction, including a temporary restraining order, preliminary injunction or other interim equitable relief, concerning a dispute prior to any arbitration if necessary to protect the interests of such Party or to preserve the status quo pending the arbitration proceeding.

16.6 Excluded Matters. Notwithstanding Sections 16.2 through 16.4, any dispute, controversy or claim relating to the scope, validity, enforceability or infringement of any Patent shall be submitted to a court of competent jurisdiction.

ARTICLE 17
MISCELLANEOUS

17.1 Entire Agreement; Amendment. This Agreement, the Vaccine Collaboration Agreement, and the Exhibits and Schedules hereto, sets forth the complete, final and exclusive agreement and all the covenants, promises, agreements, warranties, representations, conditions and understandings between the Parties hereto with respect to the subject matter hereof and supersedes, as of the Effective Date, all prior and contemporaneous agreements and understandings between the Parties with respect to the subject matter hereof, including the Confidentiality Agreement. No subsequent alteration, amendment, change or addition to this Agreement shall be binding upon the Parties unless reduced to writing and signed by an authorized officer of each Party.

17.2 Force Majeure. Both Parties shall be excused from the performance of their obligations under this Agreement to the extent that such performance is prevented by force majeure and the nonperforming Party promptly provides notice of the prevention to the other Party. Such excuse shall be continued so long as the condition constituting force majeure continues and the nonperforming Party takes reasonable efforts to remove the condition. For purposes of this Agreement, force majeure shall include conditions beyond the control of the Parties, including an act of God, war, terrorist act, labor strike or lock-out, epidemic, and fire, earthquake, storm or like catastrophe. If a force majeure persists for more than ninety (90) days, then the Parties will discuss in good faith the modification of the Parties' obligations under this Agreement in order to mitigate the delays caused by such force majeure.

17.3 Notices. Any notice required or permitted to be given under this Agreement shall be in writing, shall specifically refer to this Agreement, and shall be addressed to the appropriate Party at the address specified below or such other address as may be specified by such Party in writing in accordance with this Section 17.3, and shall be deemed to have been given for all purposes (a) when received, if hand-delivered or sent by confirmed facsimile or a reputable courier service, or (b) five (5) Business Days after mailing, if mailed by first class certified or registered airmail, postage prepaid, return receipt requested.

If to Liquidia: If by courier to:

Liquidia Technologies, Inc.
419 Davis Dr. Suite 100
Morrisville, NC 27560
Attn: Legal
Fax: [***]

If by mail to:

Liquidia Technologies, Inc.
P.O. Box 110085
Research Triangle Park, NC 27709
Attn: Legal
Fax: [***]

With a copy to (which shall not constitute notice):

Cooley LLP
One Freedom Square
Reston Town Center
11951 Freedom Drive
Reston, VA 20190-5656
Attn: Kenneth J. Krisko
Fax: [***]

If to GSK: GlaxoSmithKline
709 Swedeland Road
King of Prussia, PA, 19406
Attention: Business Development
Facsimile: [***]

With a copy to (which shall not constitute notice):

GlaxoSmithKline
2301 Renaissance Boulevard
Mailcode RN0220
King of Prussia, PA 19406-2772
Attention: Vice President and Associate General Counsel, Business Development Transactions
Telephone: [***]
Facsimile: [***]

17.4 No Strict Construction; Headings. This Agreement has been prepared jointly by the Parties and shall not be strictly construed against either Party. Ambiguities, if any, in this Agreement shall not be construed against any Party, irrespective of which Party may be deemed to have authored the ambiguous provision. The headings of each Article and Section in this Agreement have been inserted for convenience of reference only and are not intended to limit or expand on the meaning of the language contained in the particular Article or Section.

17.5 Assignment.

(a) Subject to Section 17.5(c) below, neither Party may assign or transfer this Agreement or any rights or obligations hereunder without the prior written consent of the other (not to be unreasonably withheld or delayed), except that a Party may make such an assignment without the other Party's consent to (i) an Affiliate (for so long as such entity remains an Affiliate) or (ii) a Third Party in connection with a Change of Control of such Party (such Third Party, an **"Acquiror"**). Any successor or assignee of rights or obligations permitted hereunder shall, in writing to the other Party, expressly assume performance of such rights or obligations. Any permitted assignment shall be binding on the successors of the assigning Party. Any assignment or attempted assignment by either Party in violation of the terms of this Section 17.5 shall be null, void and of no legal effect.

(b) In the event that a Party undergoes a Change of Control, all intellectual property rights owned or otherwise controlled by the Acquiror or its Affiliates at any time (excluding the Party hereto that becomes an Affiliate of the Acquiror as a result of such transaction) shall be excluded from the licenses granted under this Agreement (including any such intellectual property owned or otherwise controlled by such Acquiror as of the date of consummation of such transaction but not acquired as a result of the transaction), except for any intellectual property rights generated or owned by the Acquiror or its Affiliates pursuant to the term of this Agreement in performing any activity under this Agreement.

(c) GSK acknowledges that Liquidia may sell, to one or more Third Parties, Liquidia's rights to receive milestone payments and/or royalties under this Agreement to an entity whose principal purpose is to provide financing to Liquidia (the **"Royalty Purchaser"**). Upon the sale to a Royalty Purchaser described in the foregoing sentence, Liquidia shall notify GSK in writing and at Liquidia's direction, GSK shall deliver directly to the Royalty Purchaser instead of to Liquidia those payments contemplated by the Agreement. For clarity, GSK shall continue to deal directly with Liquidia in all other respects concerning such payments, including reporting obligations and audit rights as provided under the Agreement and GSK shall not be required to provide any other information, including its Confidential Information, to such Royalty Purchaser. Payments to a Royalty Purchaser shall constitute a full discharge of GSK's obligations in respect of such payment. For clarity, nothing herein shall obligate GSK to pay more than the amounts that are required under this Agreement absent such sale to a Royalty Purchaser. Liquidia shall indemnify and hold harmless the GSK Indemnitees

from and against any and all Claims arising out of any and all claims by a Royalty Purchaser with respect to or resulting from any sale as described under this Section 17.5(c), except where such Claims are due to GSK's failure to perform its obligations under the Agreement.

17.6 Performance by Affiliates. Each Party may discharge any obligations and exercise any right hereunder through any of its Affiliates. Each Party hereby guarantees the performance by its Affiliates of such Party's obligations under this Agreement, and shall cause its Affiliates to comply with the provisions of this Agreement in connection with such performance. Any breach by a Party's Affiliate of any of such Party's obligations under this Agreement shall be deemed a breach by such Party, and the other Party may proceed directly against such Party without any obligation to first proceed against such Party's Affiliate.

17.7 Further Actions. Each Party agrees to execute, acknowledge and deliver such further instruments, and to do all such other acts, as may be necessary or appropriate in order to carry out the purposes and intent of this Agreement.

17.8 Severability. If any one or more of the provisions of this Agreement is held to be invalid or unenforceable by any court of competent jurisdiction from which no appeal can be or is taken, the provision shall be considered severed from this Agreement and shall not serve to invalidate any remaining provisions hereof. The Parties shall make a good faith effort to replace any invalid or unenforceable provision with a valid and enforceable one such that the objectives contemplated by the Parties when entering this Agreement may be realized.

17.9 No Waiver. Any delay in enforcing a Party's rights under this Agreement or any waiver as to a particular default or other matter shall not constitute a waiver of such Party's

rights to the future enforcement of its rights under this Agreement, except with respect to an express written and signed waiver relating to a particular matter for a particular period of time.

17.10 Independent Contractors. Each Party shall act solely as an independent contractor, and nothing in this Agreement shall be construed to give either Party the power or authority to act for, bind, or commit the other Party in any way. Nothing herein shall be construed to create the relationship of partners, principal and agent, or joint-venture partners between the Parties.

17.11 English Language; Governing Law. This Agreement was prepared in the English language, which language shall govern the interpretation of, and any dispute regarding, the terms of this Agreement. This Agreement and all disputes arising out of or related to this Agreement or any breach hereof shall be governed by and construed under the laws of the State of Delaware, without giving effect to any choice of law principles that would require the application of the laws of a different state.

17.12 Counterparts. This Agreement may be executed in one (1) or more counterparts, by original, facsimile or PDF signature, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

{Signature page follows}

IN WITNESS WHEREOF, the Parties have executed this Agreement by their duly authorized officers as of the Effective Date.

GLAXO GROUP LIMITED		**LIQUIDIA TECHNOLOGIES, INC.**	
By:	/s/ Vaughn Walton	By:	/s/ Neal F. Fowler
Name:	Vaughn Walton	Name:	Neal F. Fowler
Title:	Authorised Signatory	Title:	CEO

LIST OF EXHIBITS:

EXHIBIT A
LIQUIDIA PATENTS

Application No.	Patent No.	A&B Ref. No.	UNC ROIs	LT Ref. No.	Country	Status	Date Issued	Date Filed	Title
2004276302	2004276302	035052/ 338794	04-0013	5001	Australia	Issued	5/19/2011	9/23/2004	Photocurable Perfluoropolyethers for Use as Novel Materials in Microfluidic Devices
08100301.6	1106262	035052/ 339054	04-0013	5001	Hong Kong	Issued	12/30/2011	9/23/2004	Photocurable Perfluoropolyethers for Use as Novel Materials In Microfluidic Devices
200601857-6	120640	035052/ 338805	04-0013	5001	Singapore	Issued	10/31/2008	9/23/2004	Photocurable Perfluoropolyethers for Use as Novel Materials in Microfluidic Devices
2,540,035		035052/ 338795	04-0013	5001	Canada	Pending		9/23/2004	Photocurable Perfluoropolyethers for Use as Novel Materials in Microfluidic Devices
2006-527164	4586021	035052/ 338801	04-0013	5001	Japan	Issued	9/10/2010	3/20/2006	Photocurable Perfluoropolyethers for Use as Novel Materials in Microfluidic Devices
PA/a/2006/003201		035052/ 338803	04-0013	5001	Mexico	Pending		3/22/2006	Perfluoropolyethers for Use as Novel Materials in Microfluidic Devices
04784924.5	1694731	035052/ 338798	04-0013	5001	Europe	Issued	3/28/2012	4/21/2006	Photocurable Perfluoropolyethers for Use as Novel Materials in Microfluidic Devices
2212/DELNP/2006		035052/ 338800	04-0013	5001	India	Pending		4/24/2006	Photocurable Perfluoropolyethers for Use as Novel Materials in Microfluidic Devices
200480034620.1	ZL 200480034620.1	035052/ 338796	04-0013	5001	China	Issued	7/20/2011	5/23/2006	Photocurable Perfluoropolyethers for Use as Novel Materials in Microfluidic Devices
10/572,764		035052/ 338792	04-0013	5001	United States	Notice of Allow		5/16/2007	Photocurable Perfluoropolyethers for Use as Novel

									Materials in Microfluidic Devices
11/825,482		035052/ 338793	04-0013	5001/01	United States	Pending		7/6/2007	Photocurable Perfluoropolyethers for Use as Novel Materials in Microfluidic Devices
T emp04-0013USCON		035052/ 410601	04-0013	5001/02	United States	New App			Photocurable Perfluoropolyethers for Use as Novel Materials in Microfluidic Devices
12/063,284	8,158,728	035052/ 339941	04-0067	5003/01	United States	Issued	4/17/2012	5/29/2009	Methods and Materials for Fabricating Microfluidic Devices
13/438,431		035052/ 417580	04-0067	5003/02	United States	Pending		4/3/2012	Methods and Materials for Fabricating Microfluidic Devices
06801056.0		035052/ 339740	04-0067	5003/01	Europe	Pending			Methods and Materials for Fabricating Microfluidic Devices
200603890.5	123152	035052/ 338898	04-0104	5002	Singapore	Issued		6/7/2006	Methods for Fabricating Isolated Micro-and Nano-Structures Using Soft or Imprint Lithography
176,254		035052/ 338892	04-0104	5002	Israel	Pending		6/12/2006	Methods for Fabricating Isolated Micro-and Nano-Structures Using Soft or Imprint Lithography
2006/04885		035052/ 338900	04-0104	5002	South Africa	Pending		6/13/2006	Methods for Fabricating Isolated Micro-and Nano-Structures Using Soft or Imprint

Application No.	Patent No.	A&B Ref. No.	UNC ROIs	LT Ref. No.	Country	Status	Date Issued	Date Filed	Title
									Lithography
2004318602	2004318602	035052/ 338850	04-0104	5002	Australia	Issued	3/25/2010	6/14/2006	Methods for Fabricating Isolated Micro-and Nano-Structures Using Soft or Imprint Lithography
PA/a/2006/006738	266246	035052/ 338896	04-0104	5002	Mexico	Issued	4/23/2009	6/14/2006	Methods for Fabricating Isolated Micro- and Nano- Structures Using Soft or Imprint Lithography
2,549,341		035052/ 338852	04-0104	5002	Canada	Pending		6/14/2006	Methods for Fabricating Isolated Micro- and Nano- Structures Using Soft or Imprint Lithography
2006-545541		035052/ 338895	04-0104	5002	Japan	Pending		6/16/2006	Methods for Fabricating Isolated Micro- and Nano- Structures Using Soft or Imprint Lithography
2006282042		035052/ 339168	04-0104	5002	Australia	Pending		6/19/2006	Nanoparticle Fabrication Methods, Systems, and Materials
417848-3		035052/ 338851	04-0104	5002	Brazil	Pending		6/19/2006	Methods for Fabricating Isolated Micro- and Nano- Structures Using Soft or Imprint Lithography
10-2006-7012179		035052/ 338894	04-0104	5002	Korea, Republic of	Pending		6/19/2006	Methods for Fabricating Isolated Micro-and-Nano-Structures Using Soft or Imprint Lithography
04821787.1		035052/ 338889	04-0104	5002	Europe	Pending		7/5/2006	Methods for Fabricating Isolated Micro- and Nano- Structures Using Soft or Imprint Lithography
3991/DELNP/2006		035052/ 338893	04-0104	5002	India	Pending		7/11/2006	Methods for Fabricating Isolated Micro- and Nano- Structures Using Soft or Imprint Lithography
200480041942.9	ZL 200480041942.9	035052/ 338853	04-0104	5002	China	Issued	7/22/2009	8/21/2006	Methods for Fabricating Isolated Micro-and Nano-Structures Using Soft or Imprint Lithography
11/594,023		035052/ 339497	04-0104	5022	United States	Pending		11/7/2006	Isolated and Fixed Micro and Nano Structures and Methods Thereof
10/583,570		035052/ 338899	04-0104	5002	United States	Pending		3/5/2007	Methods for Fabricating Isolated Micro- And Nano- Structures Using Soft or Imprint Lithography
07103263.7		035052/ 338890	04-0104	5002	Hong Kong	Pending		3/27/2007	Methods for Fabricating Isolated Micro-and Nano-Structures Using Soft or Imprint Lithography
11/825,469		035052/ 339501	04-0104	5002/01	United States	Pending		7/6/2007	Methods for Fabricating Isolated Micro- and Nano- Structures Using Soft or Imprint Lithography
9431/DELNP/2007		035052/ 339173	04-0104	5020	India	Pending		12/6/2007	Nanoparticle Fabrication Methods, Systems, and Materials
2,611,985		035052/	04-0104	5020	Canada	Pending		12/12/2007	Nanoparticle Fabrication Methods, Systems, and

Application No.	Patent No.	A&B Ref. No.	UNC ROIs	LT Ref. No.	Country	Status	Date Issued	Date Filed	Title
		339170							Materials
0611827-5	PI0611827.5	035052/ 339169	04-0104	5020	Brazil	Issued		12/17/2007	Nanoparticle Fabrication Methods, Systems, and Materials
06824764.2		035052/ 339172	04-0104	5020	Europe	Pending		1/17/2008	Nanoparticle Fabrication Methods, Systems, and Materials
200680029884.7		035052/ 339171	04-0104	5020	China	Pending		2/15/2008	Nanoparticle Fabrication Methods, Systems, and Materials
2008-517202		035052/ 339175	04-0104	5020	Japan	Pending		2/15/2008	Nanoparticle Fabrication Methods, Systems, and Materials
06849872.4		035052/ 343596	04-0104	5022	Europe	Pending		6/3/2008	Isolated and Fixed Micro and Nano Structures and Methods Thereof
12/374,182		035052/ 367428	04-0104	5033	United States	Pending		10/15/2009	Nanoparticle Fabrication Methods, Systems, and Materials for Fabricating Artificial Red Blood Cells
11/921,614		035052/ 339178	04-0104	5020	United States	Pending		7/28/2010	Nanoparticle Fabrication Methods, Systems, and Materials
2011-104856		035052/ 405505	04-0104	5002	Japan	Pending		5/10/2011	Methods for Fabricating Isolated Micro- and Nano- Structures Using Soft or Imprint Lithography
10-2011-7020441		035052/ 408972	04-0104	5002	Korea, Republic of	Pending		9/1/2011	Methods for Fabricating Isolated Micro- and Nano- Structures Using Soft or Imprint Lithography
MX/a/2007/016039	295862	035052/ 339176	04-0104	5020	Mexico	Issued	3/9/2012		Nanoparticle Fabrication Methods, Systems, and Materials
Temp04- G104KRCONT			04-0104		Korea, Republic of	New App			
11/879,746	US 2008-0181958		04-0104	5030	United States	Pending		6/17/2006	Nanoparticle Fabrication Methods, Systems, and Materials
12/444,662		035052/ 370388	07-0028	5010	United States	Pending		3/11/2010	Nanoparticle Compositions for Controlled Delivery of Nucleic Acids
US 11/633,763	US 8,128,393	n/a	n/a	5013	US	Issued	March 6, 2012	Dec. 4, 2006	Methods And Materials For Fabricating Laminate Nanomolds And Nanoparticles Therefrom
07874162.6	2117725	n/a	n/a	5013	EP	Pending		Dec. 4, 2006	Methods And Materials For Fabricating Laminate Nanomolds And Nanoparticles Therefrom
200780050904.3	101668594	n/a	n/a	5013	CN	Pending		Dec. 4, 2006	Methods And Materials For Fabricating Laminate Nanomolds And Nanoparticles Therefrom
2009-540277	2010-511544	n/a	n/a	5013	JP	Pending		Dec. 4, 2006	Methods And Materials For Fabricating Laminate Nanomolds And Nanoparticles Therefrom
10-2009-7013846	2009-0096493	n/a	n/a	5013	KR	Pending		Dec. 4, 2006	Methods And Materials For Fabricating Laminate Nanomolds And Nanoparticles

Application No.	Patent No.	A&B Ref. No.	UNC ROIs	LT Ref. No.	Country	Status	Date Issued	Date Filed	Title
									Therefrom
US 13/354,046 (DivOl off 5013US)		n/a	n/a	5013/01	US	Pending		Dec. 4, 2006	Methods And Materials For Fabricating Laminate Nanomolds And Nanoparticles Therefrom
US 12/087,374	US 2009-0250588	n/a	n/a	5015	US	Pending		Jan. 4, 2006	Nanostructured Surfaces For Biomedical/Biomaterial Applications And Processes Thereof
US 12/439,281	US 2010-0055459	n/a	n/a	5035	US	Pending		Aug 30, 2006	Nanoparticles Having Functional Additives For Self And Directed Assembly And Methods Of Fabricating Same
US 12/250,461	US 7,976,759	n/a	n/a	5037	US	Issued	July 12, 2011	Oct 12, 2007	System And Method For Producing Particles And Patterned Films
08838460.7	2207670	n/a	n/a	5037	EP	Pending		Oct 12,2007	System And Method For Producing Particles And Patterned Films
200880120295.9	101896337	n/a	n/a	5037	CN	Pending		Oct 12, 2007	System And Method For Producing Particles And Patterned Films
2648/CHENP/2010	2648/CHENP/2 010 A	n/a	n/a	5037	IN	Pending		Oct 12, 2007	System And Method For Producing Particles And Patterned Films
2010-529144	2011-501703	n/a	n/a	5037	JP	Pending		Oct 12, 2007	System And Method For Producing Particles And Patterned Films
11100331.5									
US 13/156,147									
US 12/630,569									
PI0923282-6									
200980156363.1									
09831124.4									
4696/CHENP/2011									
10-2011-7015316									
MX/a/2011/005900									
12/514,484									
12/528,571		035052/ 377412	07-0074	5028	United States	Pending		8/25/2009	Discrete Size and Shape Specific Pharmaceutical Organic Nanoparticles
13/000,244		035052/ 398597	08-0042	5043	United States	Pending		6/24/2008	High Fidelity Through Hole Film, and Associated Method
12/989,315		035052/ 396046	08-0090	5042	United States	Pending		4/25/2008	Degradable Compounds and Methods of Use Thereof, Particularly with Particle Replication in Non-Wetting Templates
13/383,518		035052/ 414403	10-0005	5047	United States	Pending		1/11/2012	Engineered Aerosol Particles, and Associated Methods
Templ0-0005JP		035052/ 414381	10-0005	5047	Japan	New App			Engineered Aerosol Particles, and Associated Methods
10742329.5		035052/ 414380	10-0005	5047	Europe	Pending			Engineered Aerosol Particles, and Associated Methods

Application No.	Patent No.	A&B Ref. No.	UNC ROIs	LT Ref. No.	Country	Status	Date Issued	Date Filed	Title
PCT/US2011/051775		035052/ 410148	11-0035	5055	International	Pending		9/15/2011	Asymmetric Bifunctional Silyl Monomers and Particles Thereof as Prodrugs and Delivery Vehicles for Pharmaceutical, Chemical and Biological Agents
PCT/US2012/025260		035052/ 415802	11-0053	6001	International	Pending		2/15/2011	Nanoparticles with Reversible Disulfide Linkages
61/564,626		035052/ 412946	12-0023	6002	United States	Pending		11/29/2011	Geometrically Engineered Particles and Methods for Modulating Macrophage or Immune Responses

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

EXHIBIT B

Schedule of Third Party Agreements

Bill & Melinda Gates Global Access Rights Letter Agreement, February 18, 2011, as amended.

PATH Vaccine Solutions, Research Collaboration Agreement, November 1, 2011.

Program for Appropriate Technology in Health (PATH)/(MVI), Research Collaboration Agreement, November 22, 2010.

University of North Carolina, Chapel Hill:

Amended and Restated License Agreement, December 15, 2008, as amended;

Material Transfer Agreement, August 16, 2007, as amended;

Supported Research Agreement, September 1, 2005, as amended.

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

EXHIBIT C

Inhaled Plan and Budget

[***]

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

EXHIBIT D

STOCK PURCHASE AGREEMENT

LIQUIDIA TECHNOLOGIES, INC.
FIRST AMENDMENT AND JOINDER TO
SERIES C-1 PREFERRED STOCK PURCHASE AGREEMENT

This FIRST AMENDMENT AND JOINDER TO SERIES C-1 PREFERRED STOCK PURCHASE AGREEMENT (the "**Amendment**") is made as of this day of June, 2012, by and among Liquidia Technologies, Inc., a Delaware corporation (the "**Company**"), and each of the persons and entities listed on Schedule A hereto (each of which is herein referred to as an "**Investor**").

WHEREAS, the Company and Bill & Melinda Gates Foundation are parties to that certain Series C-1 Preferred Stock Purchase Agreement dated as of February 18, 2011 (as executed, the "**Original Agreement**" and as amended hereby, the "**Agreement**");

WHEREAS, the Original Agreement provided for the sale by the Company of up to 6,270,064 shares of the Company's Series C-1 Preferred Stock (the "**Shares**") in one or more Subsequent Closings (as defined therein) to occur on or prior to June 18, 2011; and

WHEREAS, the Company and the other parties hereto desire to amend the Original Agreement in order to provide for the purchase by Glaxo Group Limited (which is hereby designated a "**New Investor**" pursuant to the Agreement) of Shares in a Subsequent Closing effective on the date of this Amendment.

NOW, THEREFORE, the parties hereto, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, hereby agree as follows:

1. Defined Terms. Terms that are used herein with initial capital letters and that are not otherwise defined shall have the meanings given to them in the Original Agreement.

2. Subsequent Closing. Section 1.3 of the Original Agreement is hereby amended to read as follows:

1.3 Subsequent Closing. The subsequent closing of the purchase and sale of 4,765,248 Shares shall take place at the offices of HLG at 10:00 a.m. on or before June , 2012 (which time, date and place are referred to in this Agreement as the "Subsequent Closing" and, together with the Initial Closing, each, a "Closing"). At the Subsequent Closing, the Company shall deliver to the New Investor a certificate representing the Shares that such New Investor is purchasing against payment of the aggregate Series C-1 Purchase Price therefor by check or wire transfer. The New Investor shall become a party to, and become bound by, this Agreement, the Investors' Rights Agreement, the

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

Voting Agreement and the First Refusal and Co-Sale Agreement as an "Investor" thereunder without, except as otherwise agreed with the Company, the need for an amendment to this Agreement, the Investors' Rights Agreement, the Voting Agreement and the First Refusal and Co-Sale Agreement except to add such New Investor as a signatory thereto and to add such

New Investor's name to the appropriate schedule to such agreement (including supplementing Schedule A with the name and address of each New Investor, the number of Shares to be purchased by such New Investor at the Subsequent Closing and the total Series C-1 Purchase Price payable by such New Investor at the Subsequent Closing) and each New Investor shall have the rights and obligations hereunder and thereunder as an "Investor", in each case as of the date of the Subsequent Closing.

3. Section 2.2(a)(i) is hereby amended to read as follows:

(i) Preferred Stock. 43,088,173 shares of preferred stock, par value $0.001 per share (the "**Preferred Stock**"), 1,974,430 shares of which have been designated Series A Preferred Stock (the "**Series A Preferred Stock**"), all of which are issued and outstanding, 1,834,862 shares of which have been designated Series A-1 Preferred Stock (the "**Series A-1 Preferred Stock**"), all of which are issued and outstanding, 4,620,123 shares of which have been designated Series B Preferred Stock (the "**Series B Preferred Stock**"), of which 4,496,908 shares are issued and outstanding, 24,199 of which have been reserved for issuance upon exercise of that certain Warrant to Purchase Stock issued to Silicon Valley Bank (the "**SVB Warrant**") and 99,016 of which have been reserved for issuance upon exercise of that certain Wan-ant to Purchase Stock issued to Velocity Financial Group, Inc. (and together with the SVB Warrant, the "**Series B Warrants**"), 17,102,578 shares of which have been designated Series C Preferred Stock (the "**Series C Preferred Stock**"), all of which have been issued and are outstanding and 17,556,180 shares of which have been designated Series C-1 Preferred Stock (the "**Series C-1 Preferred Stock**"), all of which are reserved for issuance pursuant to this Agreement. The rights, privileges and preferences of the Series A Preferred Stock, the Series A-1 Preferred Stock, the Series B Preferred Stock, the Series C Preferred Stock and the Series C-1 Preferred Stock are as stated in the Restated Certificate and all such rights, privileges and preferences are valid, binding and enforceable in accordance with the State of Delaware General Corporation Law. Each share of Series A Preferred Stock is convertible into 1.3539 shares of Class A Common Stock, each share of Series A-1 Preferred Stock is

convertible into 1.9512 shares of Class A Common Stock, each share of Series B Preferred Stock is convertible into 2.0026 shares of Class A Common Stock, each share of Series C Preferred Stock is convertible into 1.8331 shares of Class A Common Stock, and each share of Series C-1 Preferred Stock is convertible into 1.0000 shares of Class A Common Stock.

4. Section 3.7 is hereby amended to read as follows:

3.7 Further Limitations on Disposition. Without in any way limiting the representations set forth above, such Investor further agrees not to make any disposition of all or any portion of the Securities (other than to an affiliate) unless and until:

(a) There is then in effect a registration statement under the Act covering such proposed disposition and such disposition is made in accordance with such registration statement; or

(b) (i) Such Investor shall have notified the Company of the proposed disposition and shall have furnished the Company with a detailed statement of the circumstances surrounding the proposed disposition, and (ii) if reasonably requested by the Company, such Investor shall have furnished the Company with an opinion of counsel reasonably satisfactory to the Company that such disposition will not require registration of such shares under the Act. It is agreed that the Company will not require opinions of counsel for transactions made pursuant to Rule 144.

Notwithstanding the provisions of subsections (a) and (b) above, no such registration statement or opinion of counsel shall be necessary for a transfer by an Investor that is (x) a partnership to a partner of such partnership or a retired partner of such partnership who retires after the date hereof, or to the estate of any such partner or retired partner or the transfer by gift, will or intestate succession of any partner to his or her spouse or to the siblings, lineal descendants or ancestors of such partner or his or her spouse or (y) a limited liability company to a member of such limited liability company or a retired member of such limited liability company who retires after the date hereof, or to the estate of any such member ore retired member or the transfer by gift, will or intestate succession of any member to his or her spouse or to the siblings, lineal descendants or ancestors of such member or his or her spouse, if the prospective transferee agrees in all such instances

in writing to be subject to the terms hereof to the same extent as if her or she were an original Investor hereunder.

5. Condition to Subsequent Closing. Article 6 of the Original Agreement is hereby amended to add the following Section 6.8:

6.8 Collaboration Agreements. The Company and GSK shall have entered into each of the Inhaled Collaboration and Option Agreement, in the form attached hereto as Exhibit F-1.

6. Schedule A. Schedule A to the Original Agreement is hereby replaced with Schedule A attached to this Amendment.

7. No Other Amendment. Except as expressly provided for herein, the Original Agreement shall remain in full force and effect.

[The remainder of this page is intentionally left blank]

IN WITNESS WHEREOF, the parties have executed this FIRST AMENDMENT AND JOINDER TO SERIES C-1 PREFERRED STOCK PURCHASE AGREEMENT as of the date first above written.

COMPANY:

Liquidia Technologies, Inc.

By: _____

Name: Neal Fowler

Title: Chief Executive Officer

IN WITNESS WHEREOF, the parties have executed this FIRST AMENDMENT AND JOINDER TO SERIES C-1 PREFERRED STOCK PURCHASE AGREEMENT as of the date first above written.

INVESTOR:

BILL & MELINDA GATES FOUNDATION

By: _____
Name:
Title:

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

IN WITNESS WHEREOF, the parties have executed this FIRST AMENDMENT AND JOINDER TO SERIES C-1 PREFERRED STOCK PURCHASE AGREEMENT as of the date first above written.

INVESTOR:

GLAXO GROUP LIMITED

By: _____
Name:
Title:

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

Schedule A

Schedule of Investors

Closing Date: **February 18, 2011**
Price Per Share: **$0.886044 for the Bill & Melinda Gates Foundation**

Name and Address	Number of Shares Purchased	Total Purchase Price of Shares
Bill & Melinda Gates Foundation	11,286,115	$ 9,999,994.48
TOTAL	**11,286,115**	**$ 9,999,994.48**

Closing Date: **June ,2012**
Price Per Share: **$0.797440**

Name and Address	Number of Shares Purchased	Total Purchase Price of Shares
Glaxo Group Limited	4,765,248	$ 3,799,999.37
TOTAL	**4,765,248**	**$ 3,799,999.37**

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

EXHIBIT E

PREVENTION OF CORRUPTION — THIRD PARTY GUIDELINES

The GSK Anti-Bribery and Corruption Policy (POL-GSK-007) requires compliance with the highest ethical standards and all anti-corruption laws applicable in the countries in which GSK (whether through a third party or otherwise) conducts business. POL-GSK-007 requires all GSK employees and any third party acting for or on behalf of GSK to ensure that all dealings with third parties, both in the private and government sectors, are carried out in compliance with all relevant laws and regulations and with the standards of integrity required for all GSK business. GSK values integrity and transparency and has zero tolerance for corrupt activities of any kind, whether committed by GSK employees, officers, or third-parties acting for or on behalf of the GSK.

Corrupt Payments — GSK employees and any third party acting for or on behalf of GSK, shall not, directly or indirectly, promise, authorise, ratify or offer to make or make any "payments" of "anything of value" (as defined in the glossary section) to any individual (or at the request of any individual) including a "government official" (as defined in the glossary section) for the improper purpose of influencing or inducing or as a reward for any act, omission or decision to secure an improper advantage or to improperly assist the company in obtaining or retaining business.

Government Officials — Although GSK's policy prohibits payments by GSK or third parties acting for or on its behalf to any individual, private or public, as a "quid pro quo" for business, due to the existence of specific anticorruption laws in the countries where we operate, this policy is particularly applicable to "payments" of "anything of value" (as defined in the glossary section), or at the request of, "government officials" (as defined in the glossary section).

Facilitating Payments — For the avoidance of doubt, facilitating payments (otherwise known as "greasing payments" and defined as payments to an individual to secure or expedite the performance of a routine government action by government officials) are no exception to the general rule and therefore prohibited.

GLOSSARY

The terms defined herein should be construed broadly to give effect to the letter and spirit of the ABAC Policy. GSK is committed to the highest ethical standards of business dealings and any acts that create the appearance of promising, offering, giving or authorizing payments prohibited by this policy will not be tolerated.

Anything of Value: this term includes cash or cash equivalents, gifts, services, employment offers, loans, travel expenses, entertainment, political contributions, charitable donations, subsidies, per diem payments, sponsorships, honoraria or provision of any other asset, even if nominal in value.

Payments: this term refers to and includes any direct or indirect offers to pay, promises to pay, authorizations of or payments of anything of value.

Government Official shall mean:

- Any officer or employee of a government or any department, agency or instrument of a government;
- Any person acting in an official capacity for or on behalf of a government or any department, agency, or instrument of a government;
- Any officer or employee of a company or business owned in whole or part by a government;
- Any officer or employee of a public international organization such as the World Bank or United Nations;
- Any officer or employee of a political party or any person acting in an official capacity on behalf of a political party; and/or
- Any candidate for political office.

Schedule 1.109

NET SALES

[***]

SCHEDULE 3.5

R&D POLICY PRINCIPLES

A. Ethical Conduct Requirements

Ethical Conduct

The Parties are committed to the highest standards of conduct in all aspects of their respective businesses and to conduct their business with honesty and integrity, and in compliance with all applicable legal and regulatory requirements.

- Always act with integrity and honesty and protect the Parties' public image and reputation in relationships with customers, competitors, suppliers, business partners and staff
- Promptly raise any concerns about possible unethical or illegal conduct
- Be free from actual or potential conflicts of interest that might influence, or appear to influence their judgment or actions when performing duties on behalf of the Parties
- The Parties' reputation and the respect of those who deal with the Parties must not be put at risk by acceptance of any entertainment, gifts or favors intended or perceived by others to influence their business judgment
- Communications with external audiences, i.e., Investors and the Media, should be managed through appointed company spokespersons to minimize risk to the Parties' reputation
- Provide accurate and reliable information in records submitted, safeguard the Company's confidential information, and respect the confidential information of other parties with whom the Company does business or competes

Management of Human Safety Information

The safeguarding of human subjects participating in clinical trials and patients who use devices or take investigational or licensed medicinal products, certain consumer healthcare products, vaccines, or biological products (the foregoing collectively referred to as the "Products") is of paramount importance. Products would also include blinded, placebo, or control agents used in clinical studies. Therefore, the Parties require a framework for management of Human Safety Information. The framework includes, but is not limited to:

- Safety reviews of Products to evaluate emergent safety data
- Creation of appropriate committees and safety departments to proactively address human safety throughout Product development
- Reporting of Human Safety Information to safety departments in a timely fashion. This includes any information relating to human health and/or wellbeing arising following exposure of humans to products including reports of drug abuse or overdose, reports of drug interaction, or information received as part of product complaints

Care and Ethical Treatment of Animals in Research

- Animals should be used in research only when required by regulatory authorities or where there are no alternatives through adherence to the "3R" Principles—reducing the

number of animals used, replacing animals with non-animal methods whenever possible and refining the research techniques used. In addition, the Parties include two more R's: Responsibility and Respect for animals involved in animal research.

- The Parties believe in using the highest standards for the humane care and treatment of all animals used in research, development and testing, including adherence to the principles (listed below), and all applicable legal and regulatory requirements, with a default to which ever is more stringent.

  - Access to species appropriate food and water
  - Access to species specific housing, including species appropriate temperature and humidity levels
  - Access to humane care and a program of veterinary care
  - Animal housing that minimizes the development of abnormal behaviors and allows for normal species specific behavior,
  - Adherence to principles of replacement, reduction and refinement in the design of in vivo studies
  - Study design reviewed by institutional ethical review panel Commitment to minimizing pain and distress during in vivo studies
  - Work performed by appropriately trained staff
  - No Great Apes should be used for research

B. Requirements for Engaging External Experts and Healthcare Professionals

Use of External Experts within R&D

The Parties believe that the engagement of external experts in R&D should be done in accordance with the following principles:

- There must be a legitimate need for the services of the expert that cannot be fulfilled in-house, and the minimum number of experts needed should be used
- Selection of experts should be based solely on the expert's qualifications and expertise in the subject matter for which such expert is retained

- The expert's services must be documented in a written signed agreement
- Compensation must be based on fair market value for the services provided
- Reimbursement or pre-payment for costs associated with travel, lodging, meals and hospitality (i.e. refreshments, background music at meetings) for an expert are acceptable if permitted by all law for the location in which the services are rendered and are modest in value

- Experts shall not receive any gifts of any value, especially where the expert is also a healthcare professional
  - Gift includes anything of value, regardless of amount, given to show friendship, appreciation, or support, including meals, entertainment or recreational activities (excludes fair market value for services rendered).

- Healthcare Professionals includes, but is not limited to, physicians, their allied health professionals, and medical office staff. This term also applies to pharmacists and employees of pharmacy benefit managers.

C. Requirements for Funding for Charitable Donations and External Science/Medical Programs

Charitable Donations

Charitable donations to an eligible Health-Related Organization are allowed. Charitable donations of either funds or in-kind support are permitted if they are for the purpose of advancing the general mission of an eligible, health-related recipient organization and if they are not tied or directed to a specific event or program.

To be considered eligible for a donation, the health-related organization must meet all of the following:

- Non-profit organization
- The organization's principle mission involves advancing science, medicine, or public health (collectively, a "health-related" mission)
- The organization does not prescribe, purchase or recommend the Parties products, unless the request for a charitable donation for such an organization is for a widely publicized fund-raising event or campaign in support of the health-related mission of the organization
- The organization, as well as its management and leadership, are independent of the control of the Parties or undue influence of any of the Parties' employees or agents

Even if the health-related organization is eligible to receive a charitable donation, the donation may not be provided if a donation is intended:

- As a means of rewarding the prescribing, recommending, or use of the Parties products or services, including the influencing of formulary inclusion or placement
- As a means of promoting the use of the Parties products or services. Return on investment (ROI) analyses are not permitted
- As a means of supporting political causes or candidates
- As a means of supporting any organization or activity without a direct and bona fide scientific, medical, or public health purpose

General Requirements for US Independent Medical Education

Funding for External Science/Medical Programs (FESMP) means financial support of specific activities intended to further the progress of science, scientific/medical education, and the public health, for which the Parties will not take any intellectual property or other proprietary interest.

- A recipient of FESMP must be reasonably qualified to conduct high quality educational programs, research, or other activity being funded
- FESMP is not permitted if used as a means of rewarding the prescribing, recommending, or use of the Parties products or services, including the influencing of formulary inclusion/placement

- A recipient of FESMP must agree to make meaningful disclosure of any financial sponsorship from the partner
- FESMP may not be "expensed" or paid with the personal funds of an employee or contractor, and then reimbursed
- FESMP is not permitted as a means of supporting political causes or candidates
- FESMP is not permitted if used as a means of supporting any organization or activity without a direct and bona fide scientific, medical, or public health purpose
- FESMP must comply with all substantive and procedural requirements established by the law where the program or activity potentially being funded will take place

D. Clinical Research Requirements

Maintaining the Confidentiality of Protected Medical Information

The Parties respect the confidential nature of protected medical information (PMI) originating from both healthy and patient volunteers involved in clinical, genetic, and other research work or from staff employed by the Parties. Therefore, a framework should be in place to safeguard PMI against inappropriate collection, retention, use and disclosure (in addition to compliance with law and regulations).

Safeguards include, but are not limited to:

- Collecting PMI only for specific and lawful purposes
- Collecting, retaining, using, reusing, and disclosing PMI only with valid consent or as otherwise permitted by law or regulation
- PMI obtained from external sources is treated as a re-use and all reuse must be consistent with the original informed consent
- Retention of PMI only for as long as business activities or scientific research requires and retention of only the minimum amount of identifying information necessary
- Ensuring the physical and technological security of PMI
- Not using PMI in external publications
- Never transferring PMI from the pharmaceutical R&D division to the marketing function unless permission is obtained from the individual

If PMI is collected that indicates the need for immediate clinical intervention, that information will be communicated to the study investigator or physician of record.

Personally Identifiable Information (PII) means information which identifies a specific individual including but not limited to, name, address, and national identification numbers (e.g. Social Security Number)

Protected Medical Information (PMI) is PII that describes clinical and medical conditions, genetic status, treatment of conditions, health status, sexual orientation, ethnic origin, etc and includes both encoded clinical trial data and overtly identifiable data.

Standards for Collecting, Obtaining and Using Human Biological Samples in Research

The Parties respect the interest of donors of human biological samples used in research and require that certain standards should apply to the collection, obtaining and use of such human biological samples, as set forth below.

- Ensure that samples are collected with informed consent and ethics committee/ Institutional Review Board (IRB) approval in accordance with the applicable research requirements of Good Clinical Practice (International Conference on Harmonization). Additionally, through informed consent, donors must be made aware that the research is being undertaken by a commercial entity and that, where applicable, the research involves the analysis of DNA and /or medical information.
- When obtaining samples from another entity that collected the samples for reasons unrelated to the Parties, confirmation that the entity complied with relevant requirements for informed consent, ethics committee/IRB approval and data privacy is required
- Human biological samples must be used only for purposes that are consistent with the consent obtained and in compliance with relevant laws and regulations
- Additional individual donor consent and ethics committee/IRB approval should be obtained when the research use intended is inconsistent with /beyond the scope of the original consent. Additional consent should also be obtained if the original consent did not include analysis of DNA (if relevant to the research proposal) or use of any associated medical information (if relevant to the research proposal).
- In general, cell lines (e.g. HeLa), derivatives (e.g. isolated proteins) and preparations of human biological materials (e.g. sub-cellular fractions) that are well established and made available for research use, do not require re- consent and/or ethics committee/IRB approval for the intended research use
- Proposals to collect, obtain, or use human embryonic or foetal samples for research should be carefully reviewed and such research must have the potential to benefit patients

Conduct and Public Disclosure of Human Subject Research

The Parties carry out human subject research in accordance with the ethical principles of respect for persons, beneficence, and justice. Such research conforms to high ethical, medical and scientific standards. Specific principles for different types of human subject research are set forth below.

All Human Subject Research

All human subject research must be conducted in accordance with the following principles:

- Human subject research is conducted in accordance with the ethical principles of respect for persons, beneficence and justice
- Human subject research always has a legitimate scientific purpose and is not designed with the objective of rewarding healthcare professionals for using, purchasing, recommending, or prescribing the Parties' products
- Sales/marketing/commercial staff generally does not participate in the initiation or conduct of human subject research
- Placebo controlled studies are conducted only when there are scientifically sound methodological reasons, where the risks are minimized and reasonable in relation to

the knowledge gained, and when patients who receive placebo will not be subject to any additional risk of harm
- The standard of care required by the study design is, as a minimum, consistent with local standards of care
- Human subject research should be publicly disclosed and ideally published in the searchable, peer reviewed, scientific literature

In most circumstances, summary protocols and summary results of clinical studies are posted on publicly available registers and/or in the scientific literature within appropriate timelines.

- External proposals for additional analyses of human subject research studies are assessed for scientific merit and undertaken as collaborations between in-house scientists and the proposer.
- Clinical studies are never terminated for solely financial reasons.

Interventional Human Subject Research

In addition to the foregoing general principles applicable to all human subject research, the following principles apply to the conduct of Interventional Human Subject Research:

- Interventional human subject research is conducted in accordance with the ethical principles of the Declaration of Helsinki, the principles of ICH GCP E6, ICH El 1 (pediatrics)
- Interventional studies of medicinal and other products are conducted in countries where the products are expected to be sold in and suitable for the wider community of the country
- All interventional human subject research is conducted only with the approval of Institutional Review Boards or Independent Ethics Committees
- When interventional human subject research is conducted in developing countries, the Parties seek agreement with key interested external parties in the country on the conduct of the research, including the standard of care provided during the study, the scientific rationale for interventions, including placebo, the provision of healthcare for subjects after the study, and the fate of any capacity built for the conduct of the study
- All interventional human subject research requires the informed consent of subjects (or their legal representative) who participate in the research
- When nationally licensed medicinal products that are not the subject of the research study are required for the routine care of a patient during the conduct of the study, the Parties only fund these when they are not funded by the normal healthcare infrastructure and there is assurance that they or suitable alternatives will be available and funded after the study while the medical need exists
- For diseases/conditions that continue beyond the end of an interventional study, the Parties must be assured the healthcare system is able to provide, and will take responsibility for, the continued care of study subjects
- When there is a compelling medical rationale for patients who have derived measurable medical benefit from an investigational medicinal product during an interventional study

to continue to receive that product after the study, the Parties endeavor to provide that treatment either through additional clinical studies or through expanded access programs
- The Parties provide investigators with the summary results of interventional studies in which they participate, and encourages investigators to inform their subjects of the results

Meta-analyses and Pooled Analyses

The following principles apply to research that uses data from more than one previously conducted clinical study (Meta-analyses and Pooled Analyses):

- Research utilizing data from the Parties' previous clinical studies in a manner inconsistent with, or beyond the scope of, the original informed consent requires re-consent of the subjects, or if this is not practical, IRB/IEC approval. If this is not practical, the data are anonymized
- The Parties review, before submission for publication, any proposed manuscripts, presentations or abstracts prepared by research collaborators which originate from the Parties human subject research studies (including the Parties supported studies)

Non-Interventional (observational) Human Subject Research

The following principles apply to Non-interventional (observational) human subject research:

- For observational studies where clinical data are collected by or on behalf of the Parties specifically for the purpose of the research, the Parties abide by the local legal requirements and regulations for informed consent for the use of these data and IRB/IECs approval is obtained
- For observational studies using healthcare databases, the Parties are assured that there is compliance with relevant legal requirements for data privacy and that patients have provided informed consent for the use of their data in research, or IRB/IEC approval has been obtained for that use; or other measures to protect privacy are in place (e.g. the data are anonymized)

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

AMENDMENT 1 TO THE
INHALED COLLABORATION AND OPTION AGREEMENT

This Amendment no. 1 to the Agreement ("**Amendment**") is made effective as of the 13th day of May 2015 ("**Amendment Effective Date**") by and between:

LIQUIDIA TECHNOLOGIES, INC., a Delaware corporation, having its principal place of business at 419 Davis Dr., Suite 100, Morrisville, NC 27560 ("**Liquidia**") on the one part and;

GLAXO GROUP LIMITED, a company organized and existing under the laws of England and having an office and place of business at 980 Great West Road, Brentford, Middlesex TW8 9GS England ("**GSK**") on the other part.

WHEREAS, the Parties have entered into the INHALED COLLABORATION AND OPTION AGREEMENT, dated June 15th, 2012 ("**the Agreement**"); and

WHEREAS, the Parties wish to extend the Inhaled Collaboration Term on the terms provided herein.

NOW THEREFORE, in consideration of the foregoing premises and the mutual covenants and conditions contained in this Amendment, the Parties agree as follows:

1. All capitalized terms used but not defined herein have the meanings ascribed to them in the Agreement.

2. Section 3.3(a) of the Agreement is hereby deleted and replaced with the following:

   "Subject to the extensions provided in Sections 3.3(b) and (c), the term of the Inhaled Collaboration (the "**Inhaled Collaboration Term**") shall commence on the Effective Date and expire on December 15, 2015. Notwithstanding the foregoing, with respect to the Liquidia Respiratory Option and Respiratory Option Notice the initial Inhaled Collaboration Term of June 15, 2015 shall continue to control."

3. Section 4.2(b) of the Agreement is hereby deleted and replaced with the following:

   "GSK may exercise the Inhaled Option by providing written notice to Liquidia (the "**Inhaled Option Notice**") at any time before or upon the expiration of the Inhaled Collaboration Term (the "**Inhaled Option Period**"). Notwithstanding the foregoing, all final data and results generated by or on behalf of Liquidia

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Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

under the Inhaled Collaboration through June 15, 2015 shall be provided to GSK as soon as reasonably practicable to enable GSK to determine whether or not to exercise the Inhaled Option during the Inhaled Option Period."

4. As of the Amendment Effective Date, in accordance with Section 2.1(d)(iii), the JSC has approved an updated Inhaled Plan and associated budget setting forth the Collaboration Costs expected to be incurred by Liquidia in the performance thereof. The updated Inhaled Plan is attached hereto as **Appendix A**, and establishes the work to be performed by Liquidia and GSK from June 15, 2015 through September 9, 2015. For clarity, in accordance with Appendix A, (i) Liquidia will not transfer to, nor be obligated to transfer to GSK any Research Materials after June 15, 2015, up to the date GSK exercises the Inhaled Option and (ii) all activities by Liquidia and GSK stop on September 9, 2015, provided GSK has not exercised the Inhaled Option. Collaboration Costs incurred in connection with the Inhaled Plan attached as Appendix A shall be managed in accordance with the terms of the Agreement in force as of the Amendment Effective Date and which remain unchanged by this Amendment, except as provided in Section 8 below.

5. In partial consideration for Liquidia's agreement to manufacture GMP PRINT Materials prior to the exercise by GSK of the Inhaled Option, as well as additional activities regarding the ribavirin program set forth in the updated Inhaled Plan, GSK shall pay to Liquidia a one-time non-refundable payment of [***] Dollars ($[***]) (the "Amendment Payment") within 30 days after receipt of an invoice from Liquidia after the Amendment Effective Date, which invoice shall be sent in PDF format to [***] with a copy to the Alliance Manager. The Amendment Payment shall be payable by wire transfer of immediately available funds in accordance with wire transfer instructions of Liquidia provided in writing to GSK on or prior to the Amendment Effective Date.

6. The GMP PRINT Materials referred to in Section 5 above (the "Ribavirin PRINT Materials") will be manufactured, tested, packaged, stored, labeled, released and delivered in accordance with GMP, any specifications provided by GSK, the Quality Agreement and Technical Agreement to be entered into promptly after the Amendment Effective Date, and all applicable laws, and supplied in accordance with Section 3.5(c) of the Agreement; provided, that the Parties agree that the Ribavirin PRINT Materials will be shipped to GSK within five (5) days after Liquidia's receipt of the Inhaled Option Notice from GSK. For clarity, the Parties shall promptly negotiate in good faith the Development Supply Agreement in accordance with the Agreement, which shall be executed prior to any human dosing. Upon execution of the Development Supply Agreement, the terms of the Development Supply Agreement shall supersede

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Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

the terms set forth above in this Section 6 with respect to the manufacture and supply of such Ribavirin PRINT Materials.

7. The payment for the milestone entitled "First dosing of First Patient in Phase I Clinical Trial" for a New Therapeutic is hereby reduced from Three Million Dollars ($3,000,000) to One Million Five Hundred Thousand Dollars ($1,500,000) solely with respect to the first achievement of such milestone by a New Therapeutic Product. For clarity, after this milestone is first time achieved by a New Therapeutic, it will thereafter be payable at three million Dollars ($3,000,000) in accordance with Section 10.4.

8. In the event that GSK terminates the Agreement in its entirety in accordance with Section 15.2, prior to expiration of the Inhaled Collaboration Term without exercising the Inhaled Option, then, in addition to the rights and obligations of the Parties as set forth in Article 15, the following provisions shall apply: (a) Liquidia shall cease all activities under the Inhaled Plan upon receipt of GSK's written notice of termination, and (b) GSK shall reimburse Liquidia for all Collaboration Costs incurred (including any non-cancellable Collaboration Costs set forth in the budget) for activities conducted through the date of notice of termination.

9. All references to "[***]" in Sections 10.2, 10.3(a), 10.3(b) and 10.4(d) shall be replaced with GSK's Alliance Manager.

10. All other terms of the Agreement will remain unchanged and in full force and effect.

IN WITNESS WHEREOF, THE PARTIES HAVE EXECUTED THIS AMENDMENT BY THEIR DULY AUTHORIZED OFFICERS AS OF THE EFFECTIVE DATE.

GLAXO GROUP LIMITED		**LIQUIDIA TECHNOLOGIES, INC.**	
By:	/s/ Paul Williamson	By:	/s/ Neal F. Fowler
Name:	Paul Williamson	Name:	Neal F. Fowler
Title:	Authorised Signatory	Title:	CEO

Appendix A

[***]

SECOND AMENDMENT TO THE
INHALED COLLABORATION AND OPTION AGREEMENT

This Second Amendment ("**Amendment 2**") is made effective as of the 19th day of November 2015 ("**Amendment 2 Effective Date**") by and between:

LIQUIDIA TECHNOLOGIES, INC., a Delaware corporation, having its principal place of business at 419 Davis Dr., Suite 100, Morrisville, NC 27560 ("**Liquidia**") on the one part and;

GLAXO GROUP LIMITED, a company organized and existing under the laws of England and having an office and place of business at 980 Great West Road, Brentford, Middlesex TW8 9GS England ("**GSK**") on the other part.

WHEREAS, the Parties have entered into the INHALED COLLABORATION AND OPTION AGREEMENT, dated June 15th, 2012, and Amendment 1 to the Inhaled Collaboration and Option Agreement, dated May 13, 2015, (collectively "**the Agreement**");

WHEREAS, GSK exercised the Inhaled Option under Section 4.2 of the Agreement on September 4, 2015;

WHEREAS, the Parties wish to amend the Agreement to provide a mechanism for Liquidia to conduct additional Inhaled Plans on Research Materials and PRINT Materials after exercise of the Inhaled Option by GSK while GSK continues the development of Research Products in an effort to commercialize Inhaled Products; and

WHEREAS, the Parties do not intend to revive any provisions of the Agreement that expired or terminated upon exercise by GSK of the Inhaled Option.

NOW THEREFORE, in consideration of the foregoing premises and the mutual covenants and conditions contained in this Amendment 2, the Parties agree to amend the Agreement from and after the Amendment 2 Effective Date as follows:

1. All capitalized terms used but not defined herein have the meanings ascribed to them in the Agreement.

2. Section 1.50 is hereby amended and replaced in its entirety with the following new Section 1.50:

   "1.50 "**FTE Rate**" means, as of the Amendment 2 Effective Date, an annual rate of $[***] per FTE. The FTE Rate may be changed by Liquidia, upon notice to GSK and inclusion of the modified FTE Rate in the budget for the applicable

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Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

future Additional Inhaled Plan, to reflect any year-to-year percentage increase or decrease from the Amendment 2 Effective Date as reflected in the United States Consumer Price Index – All Urban Consumers, as published by the U.S. Department of Labor, Bureau of Labor Statistics, unless the Parties agree, through the JSC, to a greater increase to the FTE Rate." For clarity, the JSC has agreed as of the Amendment 2 Effective Date that Liquidia's annual FTE rate shall be adjusted to $[***] per FTE beginning with the next Additional Inhaled Plan.

3. Section 1.77 is hereby amended and replaced in its entirety with the following new Section 1.77:

   "1.77 '**Inhaled Plan**' has the meaning set forth in Section 3.2. For clarity, '**Initial Inhaled Plan**" means the Inhaled Plan conducted prior to exercise by GSK of the Inhaled Option and '**Additional Inhaled Plan**' means any Inhaled Plan conducted after the exercise by GSK of the Inhaled Option."

4. The term "**Inhaled Plan**" as used in 1.60, 1.62, 1.119, 1.134, 2.1, 2.2, 3.5, 3.6, 3.7, 3.8, 5.2, 5.5, 9.1(a), 10.2, 11.3, 12.2(j), 12.4, 13.1, 13.2, 14.3, and 15.3 of the Agreement shall hereinafter encompass both the Initial Inhaled Plan as well as any Additional Inhaled Plans.

5. Article 2 is hereby amended to include Section 2.7 which states the following:

   "2.7 **Continuation of JSC and JIRC**. In the event that Additional Inhaled Plans are being carried out during the Inhaled Collaboration Term after exercise by GSK of the Inhaled Option, the JSC and the JIRC shall continue to oversee and conduct the activities of the Collaboration Program, including without limitation the Inhaled Collaboration, and any such Additional Inhaled Plans to the extent the JSC's or JIRC's actions and oversight are necessary with respect to the Collaboration Program or the Additional Inhaled Plans. After exercise of the Inhaled Option, however, the JSC and JIRC shall cease to have any responsibility with respect to the development of Research Products or commercialization of Inhaled Products and any oversight responsibility for those activities will be carried out by the Advisory Council as set forth in Section 2.5."

6. Section 3.1 of the Agreement is hereby amended to include the following sentence at the end of Section 3.1:

   "Additionally, the Parties desire to explore potential applications of PRINT and GSK Materials selected by GSK in its sole discretion, in the Inhaled Field under specific Additional Inhaled Plans, where activities under such Additional Inhaled Plans will continue after exercise by GSK of the Inhaled Option. For clarity, any such Additional Inhaled Plan that continues after exercise by GSK of the Inhaled Option shall be considered a continuation of the Inhaled Collaboration."

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

7. Section 3.2 of the Agreement is hereby amended and replaced in its entirety with the following new Section 3.2:

   "3.2 **Inhaled Plan**. The Parties shall conduct the Inhaled Collaboration pursuant to one or more work plans (each an "**Inhaled Plan**") that sets forth specific activities to be pursue by each Party. As of the Effective Date of the Agreement, the Parties agreed upon the Initial Inhaled Plan and associated budget which was attached to the Agreement as Exhibit C. Under the Initial Inhaled Plan, Liquidia would be primarily responsible for generating PRINT Materials, generating Research Materials using PRINT Materials and GSK Materials, and scaling up its manufacturing capabilities, and GSK would be primarily responsible for in vitro and in vivo evaluation of the PRINT Materials and Research Materials in assays and preclinical models. The Parties acknowledge that the Initial Inhaled Plan will terminate upon expiration by GSK of the Inhaled Option. In the event the Parties desire to pursue Additional Inhaled Plans beyond the Initial Inhaled Plan, the Parties shall work together to set forth mutually agreed specific activities to be pursued by each Party, including detailed budgets associated with such activities, timelines, deliverables, and each Party's responsibility under the Additional Inhaled Plans. All Additional Inhaled Plans beyond the Initial Inhaled Plan shall be prepared in a similar form to the Initial Inhaled Plan attached to the Agreement as Exhibit C and shall be subject to JSC approval. From time to time (at least on an annual basis), the JIRC shall update and prepare amendments to the then-current Additional Inhaled Plan(s) and associated budget and shall submit such amendments and budget to the JSC for review and approval. Once approved by the JSC, such revised Additional Inhaled Plan(s) and budget shall replace the prior applicable Additional Inhaled Plan(s) and budget. If the terms of any Additional Inhaled Plan contradict, or create inconsistencies or ambiguities with, the terms of this Agreement, as amended, then the terms of this Agreement shall govern and control."

8. Section 3.3 of the Agreement is hereby amended and replaced in its entirety with the following new Section 3.3:

   "3.3 **Inhaled Collaboration Term**. The term of the Inhaled Collaboration (the "**Inhaled Collaboration Term**") shall commence on the Effective Date and expire upon completion of all Inhaled Plans, including any Additional Inhaled Plan(s), as determined by the JSC."

9. Section 3.4 of the Agreement is hereby amended and replaced in its entirety with the following new Section 3.4:

   "3.4 **Collaboration Costs**. GSK shall be responsible for Liquidia's FTE Costs, nonstandard costs for lab supplies and manufacturing cost of PRINT

Materials and Research Materials incurred solely in connection with the conduct of the Inhaled Plans (and not for activities outside of the conduct of the Inhaled Plans or in furtherance of Liquidia's collaborations with Third Parties) in accordance with the applicable budget (the "**Collaboration Costs**"). For clarity, manufacturing costs included in the Collaboration Costs for the Initial Inhaled Plan shall not exceed [***]Dollars ($[***]) per single shift day for standard cost and shall not include any costs associated with capital expenditures for Liquidia's manufacturing facilities unless otherwise agreed by the Parties in accordance with Section 2.1(e)(ii). Notwithstanding anything to the contrary in this Agreement (including the Initial Inhaled Plan and any revisions thereto), GSK shall fund no less than three (3) Liquidia FTEs, but no more than four (4) Liquidia FTEs to work on the Initial Inhaled Plan per year. If the activities to be conducted under the Initial Inhaled Plan require additional FTE support, then the JSC shall meet to discuss how to staff such additional activities, which may include contribution of GSK FTEs, at GSK's cost, to perform activities assigned to Liquidia. With respect to any costs and expenses incurred in connection with any Additional Inhaled Plan being conducted after GSK's exercise of the Inhaled Option, GSK shall be responsible for all such costs and expenses. The Parties will agree on a budget for such Additional Inhaled Plan and any costs and expenses related to such Additional Inhaled Plans shall be considered part of the Collaboration Costs, including the applicable FTE Costs and manufacturing costs. Notwithstanding the foregoing, GSK and Liquidia, through the JSC, shall agree on the FTE Costs, including without limitation the number of FTEs, for such Additional Inhaled Plans being conducted after GSK's exercise of the Inhaled Option. GSK shall reimburse Liquidia for the Collaboration Costs as set forth in Section 10.2. For the avoidance of doubt, GSK shall be responsible for all cost and expenses incurred by GSK to conduct the Inhaled Collaboration."

10. Section 5.1 of the Agreement is hereby amended and replaced in its entirety with the following new Section 5.1:

"5.1 **Collaboration License Under Liquidia Technology.** Subject to the terms and conditions of this Agreement, Liquidia hereby grants to GSK a non-exclusive, worldwide, sublicensable license, under the Liquidia Technology for the sole purpose of carrying out GSK's obligations and research rights under the Inhaled Plans, which license shall become effective on the Effective Date and shall expire upon the expiration of the Inhaled Collaboration Term. The license grant in this Section 5.1 will include the right to have made Research Materials as further described in Section 5.2(c)(i)."

11. The Parties acknowledge that, as of September 4, 2015, GSK has exercised the Inhaled Option. Accordingly, any restrictions on the Parties as set forth in Sections 11.4(a), (b) and (c) have expired with respect to the Joint Inhaled Collaboration Know-How resulting from the Initial Inhaled Plan and each Party may use and disclose Joint Inhaled Collaboration Know-How arising from the Initial Inhaled Plan in accordance with their ownership interest therein. For clarity, as of September 4, 2015, Sections 11.4(a), (b) and (c) continue in full force and effect as such sections apply to any Joint Vaccine Collaboration Know-How resulting from the Vaccine Plan.

12. Section 11.4 of the Agreement is hereby amended to include the following Section 11.4(d):

"(d) With respect to Joint Inhaled Collaboration Know-How arising from an Additional Inhaled Plan, each Party shall be free to use and disclose such Joint Inhaled Collaboration Know-How in accordance with their ownership interest therein, provided however, a Party seeking to disclose to or use with a Third Party any Joint Inhaled Collaboration Know-How arising from an Additional Inhaled Plan prior to the completion or termination of such Additional Inhaled Plan shall provide the Joint Patent Committee ("JPC") with a copy of such proposed disclosure or information intending to be used at least forty five (45) days prior to its intended use thereof. Before expiration of this forty five (45) day period, the JPC shall approve such disclosure or request an additional sixty (60) days to prepare and file a patent application on such subject matter. The Party seeking to disclose such Joint Inhaled Collaboration Know-How to or use such with a Third Party shall be free to use and disclose such information in accord with its ownership interest therein (i) if the JPC does not approve or request such further delay within the first forty five (45) day period or (ii) after expiration of the sixty (60) day period during which the JPC has the right to seek patent protection on any Joint Inhaled Collaboration Know-How. Notwithstanding anything to the contrary in this Section 11.4(d), each Party shall be free to use and disclose such Joint Inhaled Collaboration Know-How arising from an Additional Inhaled Plan in accordance with their ownership interest therein after completion or termination of such Additional Inhaled Plan."

13. The use and extension of the "**Inhaled Collaboration Term**" under this Amendment 2, including any Additional Inhaled Plan implemented after the exercise by GSK of the Inhaled Option, shall not revive the meaning and effect given thereto in Sections 4.1(c), 4.1(d) and 4.2(b) of the Agreement.

14. Section 15.5(b)(i) shall be renamed "**Termination Prior Inhaled Option Exercise**" and the first clause of Section 15.5(b)(i) is hereby amended and replaced with the following:

"If GSK terminates the Agreement pursuant to Section 15.3 prior to exercise of the GSK Option, then: . . ."

15. All other terms of the Agreement will remain unchanged and in full force and effect.

IN WITNESS WHEREOF, THE PARTIES HAVE EXECUTED THIS AMENDMENT BY THEIR DULY AUTHORIZED OFFICERS AS OF THE DATE FIRST WRITTEN ABOVE.

GLAXO GROUP LIMITED		**LIQUIDIA TECHNOLOGIES, INC.**	
By:	/s/ Paul Williamson	By:	/s/ Shawn Glidden
Name:	Paul Williamson	Name:	Shawn Glidden
Title:	Authorised Signatory	Title:	VP Legal Affairs & Secretary

AMENDED AND RESTATED LICENSE AGREEMENT

This **LICENSE AGREEMENT** is entered into as of December 15, 2008 and is hereby made effective as of December 15, 2008 (the "EFFECTIVE DATE") by and between The University of North Carolina at Chapel Hill having an address at Campus Box 4105, 308 Bynum Hall, Chapel Hill, North Carolina, 27599-4105 (hereinafter referred to as "UNIVERSITY") and Liquidia Technologies, Inc., a corporation organized and existing under the laws of the State of Delaware having its principal office/place of business at 419 Davis Drive, Suite 100, Durham, NC 27713 (hereinafter referred to as "LICENSEE").

WITNESSETH

WHEREAS, UNIVERSITY owns and controls certain valuable inventions relating to the fabrication, use and engineering of various technologies, including microfluidic devices, small-scale particles, and display devices; and

WHEREAS, UNIVERSITY jointly owns patent applications relating to, and including, the patent application "Photocurable Perfluoropolymers for use as Novel Materials in Microfluidic Devices," contained in UNIVERSITY files reference number 04-0013 with The California Institute of Technology, ("CALTECH") and has entered into an Inter-Institutional Agreement on September 16, 2004 and First Amendment to Inter-Institutional Agreement having an effective date of December 8, 2008 (collectively "IIA") whereby CALTECH has granted UNIVERSITY the exclusive right to grant licenses under CALTECH's rights to such patent applications in all fields except microfluidics and microfluidic devices to LICENSEE (CALTECH has separately licensed its rights in microfluidics and microfluidic devices); and

WHEREAS, the INVENTIONS (as defined below) were, in part, developed by Joseph M. DeSimone and Edward T. Samulski ("INVENTOR(S)") of the UNIVERSITY; and

WHEREAS, UNIVERSITY is interested in licensing its information and technology concerning the INVENTIONS in a manner that will benefit the public, and the grant of a license best facilitates the distribution of useful products and the utilization of new processes; and

WHEREAS, LICENSEE desires to obtain a license to use the INVENTIONS as herein provided and commits to using best efforts and resources, taking into account the financial condition of LICENSEE and general business and market conditions, in a thorough, vigorous and diligent program of commercializing products and processes based upon or embodying said INVENTIONS under the terms and conditions set forth herein;

WHEREAS, LICENSEE, UNIVERSITY, and North Carolina State University ("NCSU") have previously entered into a certain License Agreement, dated November 8, 2004 which was amended under a First Amendment to License Agreement on April 10, 2006, and a Second Amendment to License Agreement on August 16, 2007 (the "NOVEMBER 2004 LICENSE AGREEMENT"), pursuant to which UNIVERSITY and NCSU granted such a license to LICENSEE, and LICENSEE, UNIVERSITY, NCSU, and CALTECH have previously entered into a certain License Agreement, dated December 17, 2004 (the "DECEMBER 2004 LICENSE

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

AGREEMENT"), pursuant to which UNIVERSITY, NCSU, and CALTECH granted such a license to LICENSEE (collectively, the NOVEMBER 2004 LICENSE AGREEMENT and DECEMBER 2004 LICENSE AGREEMENT are referred to hereinafter as "ORIGINAL LICENSE AGREEMENT");

WHEREAS, the parties desire to combine the ORIGINAL LICENSE AGREEMENTS into a single amended and restated agreement to: 1) remove NCSU as a party (due to an executed Inter-Institutional Intellectual Property Agreement on November 6, 2007 and a First Amendment to Inter-Institutional Intellectual Property Agreement, having an effective date of December 8, 2008, between NCSU and UNIVERSITY that declares that NCSU has no rights or interest in INVENTIONS and empowers UNIVERSITY to enter into this Agreement on its own), 2) remove CALTECH as a party to the DECEMBER 2004 LICENSE AGREEMENT (due to the execution of the IIA that empowers UNIVERSITY to enter into this Agreement on its own) and 3) to reflect certain amendments agreed upon in connection with the ongoing development of products and services incorporating the INVENTIONS;

NOW, THEREFORE, in consideration of the premises and mutual promises and covenants contained in this LICENSE AGREEMENT and for good and valuable consideration, it is agreed by and between UNIVERSITY and LICENSEE as follows:

ARTICLE 1

DEFINITIONS

1.1 "**AFFILIATE**" means (a) any person or entity which owns or controls at least fifty percent (50%) of the equity or voting stock of the LICENSEE, or (b) any person or entity fifty percent (50%) of whose equity or voting stock is owned or controlled by LICENSEE or (c) any person or entity of which at least fifty percent (50%) of the equity or voting stock is owned or controlled by the same person or entity owning or controlling at least fifty percent (50%) of LICENSEE.

1.2 "**INVENTIONS**" means the inventions described or disclosed in the invention disclosures, including all paperwork, patent applications, supporting data and related documentation filed with UNIVERSITY's Office of Technology Development and identified by the 'UNC ref: No' listed on **Exhibit A** to this LICENSE AGREEMENT.

1.3 "**LICENSED FIELD**" means all fields.

1.4 "**LICENSED PRODUCTS**" means any method or process, composition, product, or component part thereof covered in whole or in part by an issued, unexpired, or pending claim contained in the PATENT RIGHTS whose manufacture, use or sale includes any use of UNIVERSITY TECHNOLOGY or PATENT RIGHTS.

1.5 "**LICENSED TERRITORY**" means the entire world.

1.6 "**NET SALES**" means the total invoiced sales price less any charges for (a) sales taxes or other taxes separately stated on the invoice, (b) shipping and insurance charges,

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

(c) deductions for actual allowances for returned or defective goods and (d) trade discounts, but not cash discounts. LICENSED PRODUCTS will be considered sold when billed out, when delivered or when paid for before delivery, which ever first occurs.

1.7 **"NEW INVENTIONS"** means any invention (i) made by or under the direction of either Joseph M. DeSimone or Edward T. Samulski (ii) made without use of resources or facilities of UNIVERSITY and/or NCSU or funding of third parties and (iii) that is an improvement or modification to the INVENTIONS.

1.8 "**PATENT RIGHTS**" means any United States, foreign or international patents and/or patent applications (including provisional patents) covering the INVENTIONS or NEW INVENTIONS owned or controlled by UNIVERSITY prior to or during the term of this LICENSE AGREEMENT and which UNIVERSITY has the right to provide to LICENSEE, including without limitation, those patents and patent applications set forth in **Exhibit A** attached hereto and incorporated herein by reference, as well as any continuations, divisionals, provisionals, continued prosecution applications, or reissues thereof, and any foreign counterpart of any of the foregoing.

1.9 "**SPECIFIC LICENSED FIELD**" means microfluidics and microfluidic devices, genome mapping, sensors, nanostructures, biologic nanostructures, drug nanostructures, nano-scale reactions, drug screening, cell sorting, drug delivery, vaccines, cosmetics, diagnostics, tissue replication, soft lithography, semiconductors, RFID chips, MEMS, opto-electronic devices, display panels, photovoltaic applications, electrets, catalysts, taggants, drug discovery probes, disease detection probes, specialty coatings, or other fields disclosed in the INVENTIONS.

1.10 "**UNIVERSITIES**" means, collectively, CALTECH and UNIVERSITY.

1.11 "**UNIVERSITY TECHNOLOGY**" means any unpublished research and development information, know-how, and technical data in the possession of INVENTORS (whether prior to or after the EFFECTIVE DATE) which directly relates to and is necessary for the practice of the INVENTIONS or NEW INVENTIONS and which UNIVERSITY has the right to provide to LICENSEE, whether or not prior to or after the EFFECTIVE DATE of the Agreement, including without limitation any provisional, divisional, continuation, and related documents contained in UNIVERSITY files for the INVENTIONS.

ARTICLE 2

GRANT OF LICENSE

2.1 Subject to the terms and conditions of this LICENSE AGREEMENT, UNIVERSITY hereby grants to LICENSEE and its AFFILIATES, to the extent of the LICENSED TERRITORY, an exclusive license to UNIVERSITIES rights under the PATENT RIGHTS and UNIVERSITY TECHNOLOGY to make, have made, use, offer for sale and sell LICENSED PRODUCTS in the LICENSED FIELD, with the right to sublicense, provided, that, LICENSEE's right in the field of microfluidics and microfluidic devices shall be nonexclusive,

with respect to CALTECH'S interest in the patent application "Photocurable Perfluoropolymers for use as Novel Materials in Microfluidic Devices," contained in UNIVERSITY files reference number 04-0013.

2.2 UNIVERSITY reserves the right to practice under the PATENT RIGHTS and UNIVERSITY TECHNOLOGY to make, use and provide LICENSED PRODUCTS for non-commercial research, public service, teaching and educational purposes, without payment of royalties. Furthermore, UNIVERSITY shall be free to publish UNIVERSITY TECHNOLOGY as they see fit; provided that UNIVERSITY shall forward to LICENSEE each public disclosure or publication of UNIVERSITY TECHNOLOGY forty five (45) days prior to its public disclosure or submission for publication. LICENSEE shall, within such forty five (45) day period, advise UNIVERSITY whether LICENSEE wishes to reimburse UNIVERSITY's expenses associated with the filing of a patent application covering such UNIVERSITY TECHNOLOGY as provided in Article 8, prior to the proposed publication or disclosure. Upon the reasonable request of LICENSEE, UNIVERSITY will delay any such publication or disclosure an additional thirty (30) days to allow a patent application to be filed. Notwithstanding any other restrictions or limitations on publications contained herein, the final decision regarding publication of any article or other form of public disclosure shall be at UNIVERSITY's sole discretion, and nothing herein shall be construed so as to prevent or delay the defense or publication of any student thesis or dissertation.

2.3 Notwithstanding the foregoing, any and all licenses and other rights granted hereunder are limited by and subject to the rights and requirements of the United States Government which arise out of its sponsorship of the research which led to the conception or reduction to practice of the INVENTIONS covered by PATENT RIGHTS. The United States Government is entitled, as a right, under the provisions of 35 U.S.C. §§ 200-212 and applicable regulations of Title 37 of the Code of Federal Regulations, to a non-exclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on the behalf of the United States Government any of the PATENT RIGHTS throughout the world.

ARTICLE 3

CONSIDERATION

3.1 LICENSEE shall pay to UNIVERSITY, a license issue fee in the form of the reimbursement of costs (including reasonable attorney fees) arising out of the patenting of the INVENTIONS pursuant to Article 8 of this LICENSE AGREEMENT. The reimbursement of patenting costs shall be non-refundable and shall not be a credit against any other amounts due hereunder except as may be provided for elsewhere in this LICENSE AGREEMENT. Reimbursement of patenting costs shall be due within thirty (30) days of billing by UNIVERSITY.

3.2 Equity

3.2.1 As further consideration for the rights granted to LICENSEE under this LICENSE AGREEMENT, LICENSEE prior to December 8, 2008 has issued to The University

of North Carolina at Chapel Hill Foundation, Inc. one hundred and ninety six thousand four hundred and sixty nine (196,469) shares of non-voting common stock of LICENSEE pursuant to the Stock Issuance and Shareholder's Agreements effective November 5, 2004, thereby fully fulfilling its obligation regarding its grant of equity under the ORIGINAL LICENSE AGREEMENT.

3.2.2 LICENSEE has provided to UNIVERSITY prior to December 8, 2008, a capitalization table indicating the total number of issued and outstanding shares of LICENSEE's common stock on a fully-diluted, as-converted basis as of November 9, 2004, pursuant to the Stock Issuance and Shareholder's Agreements effective November 5, 2004, thereby fully fulfilling its obligation to provide a capitalization table under the ORIGINAL LICENSE AGREEMENT.

3.2.3 In the case where shares or securities issued to UNIVERSITY's designees as consideration for this LICENSE AGREEMENT are restricted from resale in compliance with SEC Rule 144 or otherwise as required by law, LICENSEE agrees to remove or cancel the notice of restriction associated with such shares or securities within thirty (30) days of the request of UNIVERSITY provided that any legally required terms of restriction on resale have expired and UNIVERSITY shall have provided such information as is reasonably requested by LICENSEE or LICENSEE's counsel to ensure reliance on Rule 144.

3.3 Beginning on December 12, 2008 and continuing for the life of this LICENSE AGREEMENT, LICENSEE will pay UNIVERSITY a running royalty of [***] percent ([***]%) of all NET SALES of LICENSED PRODUCTS sold by LICENSEE and/or its AFFILIATES. LICENSEE shall pay to UNIVERSITY said royalties on the LICENSED PRODUCTS concurrently with the making of quarterly written reports as provided in Section 4.1 below.

3.3.1 LICENSED PRODUCT sold by LICENSEE to its AFFILIATES shall not be considered NET SALES of LICENSED PRODUCT for purposes of computing royalty obligations hereunder, provided that any subsequent sale by such AFFILIATE shall be included in computing royalty obligations. If such AFFILIATE does not subsequently sell such LICENSED PRODUCT, then the sale by LICENSEE to such AFFILIATE shall be considered NET SALES of such LICENSED PRODUCT for purposes of computing royalty obligations hereunder.

3.4 Sublicensing

3.4.1 In respect to sublicenses granted by LICENSEE under Article 6 below, LICENSEE shall pay to UNIVERSITY [***] percent ([***]%) of any fees, minimum royalties, and any consideration other than royalties that LICENSEE receives from each sublicensee for any rights granted under a sublicense agreement within thirty (30) days of receiving any such payments from each such sublicense. LICENSEE shall not be required to make such payment to UNIVERSITY on fees or other consideration received by LICENSEE from sublicensees as: (i) payment or reimbursement for research and development (including joint development) activities by LICENSEE in connection with LICENSED PRODUCTS or the INVENTIONS (provided that (a) LICENSEE provides to UNIVERSITY the statement of work, including, to the extent

available, a reasonable budget, for each research and development program prior to engaging in each such research and development program and (b) any subsequent sale of such LICENSED PRODUCTS shall be subject to the royalty calculations herein); (ii) payment for LICENSEE services provided in connection with any sublicense provided that such services do not require use of INVENTIONS or

UNIVERSITY TECHNOLOGY, (iii) a loan that is not convertible to shares of LICENSEE's stock and that bears market rate interest, (iv) the purchase price of LICENSEE's equity securities at fair market value, (v) reimbursement of patent costs, or (vi) proceeds from private or governments research grants to LICENSEE.

3.4.2 LICENSEE shall pay to UNIVERSITY [***] percent ([***]%) of royalty payments LICENSEE receives from each sublicensee; *provided*, *however*, that in no event shall the royalty rate paid by LICENSEE to UNIVERSITY be less than [***] percent ([***]%) of NET SALES of LICENSED PRODUCTS sold by each sublicensee and no greater than [***] percent ([***]%) of NET SALES of LICENSED PRODUCTS sold by each sublicensee. LICENSEE shall pay to UNIVERSITY said royalties on the LICENSED PRODUCTS concurrently with the making of quarterly written reports as provided in Section 4.1 below. LICENSEE may request that UNIVERSITY accept a royalty rate less than one-half percent (0.5%) of NET SALES of LICENSED PRODUCTS sold by a sublicensee, provided that LICENSEE submits financial details that justify such request; such request shall be denied or accepted at UNIVERSITY's sole discretion. In the event that the definition of "net sales" agreed to between LICENSEE and one of its sublicensees differs from the definition of NET SALES herein, the parties shall execute a consent letter memorializing such net sales definition between LICENSEE and such sublicensee and providing that such definition shall be used for purposes of the calculation set forth in this Section 3.4.2.

3.5 All fees, royalties, and other payments due to UNIVERSITY under this LICENSE AGREEMENT shall be made in United States Dollars.

3.6 In the event royalty payments or fees are not received by UNIVERSITY when due, LICENSEE shall pay to UNIVERSITY interest and charges at the Prime Rate of interest as reported in the Eastern edition of The Wall Street Journal on the date the payment is due plus two percent (2.0%) on the total royalties or fees due.

3.7 In the event of default in payment of any payment owing to UNIVERSITY under the terms of this LICENSE AGREEMENT, and if it becomes necessary for UNIVERSITY to undertake legal action to collect said payment, LICENSEE shall pay all legal fees and costs incurred by UNIVERSITY in connection therewith.

3.8 In the events that (i) LICENSEE, after diligent efforts, finally determines any royalties payments due on NET SALES of LICENSED PRODUCTS or any other payments due to LICENSEE pursuant to Section 3.4.1 or 3.4.2 to be uncollectible ("UNCOLLECTIBLE SALES"), and (ii) LICENSEE terminates the corresponding sublicense agreement pursuant to Section 6.4; any corresponding unpaid royalty and/or other unpaid payments on such UNCOLLECTIBLE SALES owed to the UNIVERSITY shall be forgiven, if not paid or, if previously paid to UNIVERSITY by LICENSEE, shall be credited against future royalties and payments which may become due to UNIVERSITY under this LICENSE AGREEMENT.

ARTICLE 4

REPORTS AND RECORDS

4.1 LICENSEE shall submit to UNIVERSITY a report semi-annually on or before January 15th and July 15th of each year after the EFFECTIVE DATE and such reports shall include an updated business plan with a detailed summary describing LICENSEE'S technical and other efforts made towards commercialization of LICENSED PRODUCTS in each LICENSED FIELD under development. Representatives from LICENSEE and UNIVERSITY will meet annually before January 30th of each year subsequent to the year 2005 to discuss and review LICENSEE's most recent business plan.

4.2 Subsequent to the first commercial sale of LICENSED PRODUCTS, LICENSEE agrees to make quarterly written reports to UNIVERSITY within ninety (90) days after the first days of each January, April, July, and October during the life of this LICENSE AGREEMENT and as of such dates, stating in each such report the number, description, and aggregate selling prices of LICENSED PRODUCTS sold or otherwise disposed of during the preceding three calendar months and upon which royalty is payable as provided in Sections 3.3 and 3.5 hereof. The first such report shall include all such LICENSED PRODUCTS so sold or otherwise disposed of prior to the date of such report. LICENSEE agrees to provide, in the reports under this section a good faith estimate of the allocation of royalties attributable to each patent within the PATENT RIGHTS.

4.3 LICENSEE will keep complete, true and accurate books of account and records for the purpose of showing the derivation of all amounts payable to UNIVERSITY under this LICENSE AGREEMENT. Such books and records will be kept at LICENSEE's principal place of business for at least three (3) years following the end of the calendar quarter to which they pertain, and will be open at all reasonable times for inspection by a representative of UNIVERSITY solely for the purpose of verifying LICENSEE's royalty statements or LICENSEE's compliance in other respects with this LICENSE AGREEMENT. The representative will be obliged to treat as confidential all relevant matters.

4.4 Inspections made under Section 4.3 shall be at the expense of UNIVERSITY, unless a variation or error in the calculation of NET SALES of LICENSED PRODUCTS or other fees, payments or royalties received by LICENSEE from sublicensees pursuant to Section 3.4.1 or 3.4.2 which form the basis for calculation of the royalties and other payments due to UNIVERSITY equal to or greater than one percent (1.0%) is discovered in the course of any such inspection, whereupon all costs relating thereto shall be paid by LICENSEE.

4.5 LICENSEE will promptly pay to UNIVERSITY the full amount of any underpayment, together with interest thereon at the Prime Rate of interest as reported in the Eastern edition of The Wall Street Journal on the date the payment is due plus two percent (2%).

ARTICLE 5

DUE DILIGENCE

5.1 LICENSEE shall use its best efforts and due diligence, taking into account the financial condition of LICENSEE and general business and market conditions, to proceed earnestly and assiduously with the research, development and commercialization, including manufacture and sale, of LICENSED PRODUCTS in each LICENSED FIELD during the period of this LICENSE AGREEMENT.

5.2 In particular, LICENSEE will use its best efforts, taking into account the financial condition of LICENSEE and general business and market conditions, to meet all obligations under the performance milestones set forth in **Exhibit B**, which is attached hereto. Substantial variations of **Exhibit B** must be expressly approved by UNIVERSITY in writing, such approval not to be unreasonably withheld. Any efforts and activities undertaken by LICENSEE's AFFILIATES or sublicensees will be treated as LICENSEE's efforts and activities for purposes of determining LICENSEE's compliance with the terms of this Article 5.

5.3 If LICENSEE fails to meet or achieve any of Milestones C through P set forth in **Exhibit B**, then UNIVERSITY shall be entitled to revise the LICENSE AGREEMENT to exclude a SPECIFIC LICENSED FIELD from the then-existing LICENSED FIELD; *provided*, *however*, that LICENSEE, in its sole discretion, shall have the right to designate which SPECIFIC LICENSED FIELD shall be excluded from this LICENSE AGREEMENT. LICENSEE shall designate the SPECIFIC LICENSED FIELD to be so excluded by written documentation to UNIVERSITY within 30 days of notice from UNIVERSITY of LICENSEE's failure to meet or achieve any Milestone C through P (the "DESIGNATION PERIOD"). In the event that LICENSEE fails to designate the SPECIFIC LICENSED FIELD prior to the expiration of the DESIGNATION PERIOD, then UNIVERSITY, at its sole discretion, shall be entitled to select the SPECIFIC LICENSED FIELD to be excluded from the then-existing LICENSED FIELD; *provided*, *however*, that UNIVERSITY shall not exclude from this LICENSE AGREEMENT any SPECIFIED LICENSED FIELD for which LICENSEE has previously provided a detailed commercialization plan or in which LICENSEE or its sublicensees or AFFILIATES have made a commercial sale of LICENSED PRODUCT. In such event, UNIVERSITY shall select the SPECIFIC LICENSED FIELD to be excluded and the LICENSE AGREEMENT shall be amended by UNIVERSITY to reflect any the exclusion of such SPECIFIC LICENSED FIELD from this LICENSE AGREEMENT within thirty (30) days of the expiration of the DESIGNATION PERIOD.

5.4 The milestones set forth in **Exhibit B** shall be delayed upon, and to the extent of the amount of time necessary to correct or adjust for, the occurrence of events beyond the reasonable control of LICENSEE, if such events have a direct negative and material impact on the ability of LICENSEE or LICENSEE's AFFILIATES to achieve the respective milestone despite LICENSEE's best efforts, taking into account the financial condition of LICENSEE and general business and market conditions, to overcome such events.

ARTICLE 6

SUBLICENSING

6.1 LICENSEE may sublicense any or all of the rights licensed hereunder, excluding the right to sublicense further unless prior written consent has been received by LICENSEE from UNIVERSITY, provided that LICENSEE notifies UNIVERSITY in writing and provides UNIVERSITY with a copy of each sublicense agreement and each amendment thereto within thirty (30) days after their execution.

6.2 If LICENSEE receives any non-cash consideration from a sublicensee in lieu of cash payments for any sublicense under this LICENSE AGREEMENT, LICENSEE shall use good faith efforts to establish the fair market value of such consideration and pay to UNIVERSITY royalties on such consideration within thirty (30) days of receipt of each such non-cash consideration.

6.3 LICENSEE shall require that all sublicense agreements be consistent with the terms, conditions and limitations of the licenses granted to LICENSEE under this LICENSE AGREEMENT. In addition, LICENSEE'S sublicense agreements shall (i) require sublicensee to meet due diligence milestones, if any such milestones are specifically applicable to sublicensees, pursuant to Article 5, (ii) exclude the right of sublicensees to sublicense further pursuant to Section 6.1, absent UNIVERSITY's prior written consent, (iii) include the sublicensee's acknowledgment of the disclaimer of warranty and limitation on UNIVERSITY's liability, pursuant to Article 10, and (iv) stipulate that any LICENSED PRODUCTS used or sold in the United States shall be substantially manufactured in the United States if and as required by 35 U.S.C. § 204, as specified in Section 12.6. Notwithstanding anything to the contrary contained in this Section 6.3, the requirements of the foregoing clauses (i) through (iv) shall not apply in the case of any trial or similar sublicense granted by LICENSEE solely for the purpose of determining the suitability of any INVENTIONS for a potential development, manufacturing commercialization or other business relationship. For avoidance of doubt, the granting of any such trial or similar sublicense in and of itself does not constitute an election to negotiate under Section 6.7.

6.4 Upon execution of each sublicense agreement, LICENSEE agrees to use its commercially reasonable efforts to enforce each sublicensee's compliance with each such sublicense agreement, and LICENSEE shall terminate any sublicense agreement if the sublicensee is in material breach of the sublicense agreement and fails to cure such breach within sixty (60) days of LICENSEE's discovery of such breach. Material breach by a sublicense shall include, but not be limited to, (i) failure to submit to LICENSEE an accurate report of NET SALES and (ii) failure to pay LICENSEE amounts due and owed under the sublicense agreement on the dates such payments are due.

6.5 Any sublicense granted in accordance with this LICENSE AGREEMENT prior to termination or expiration of this LICENSE AGREEMENT shall survive any such termination or expiration. LICENSEE shall cause every sublicense agreement to provide LICENSEE the right to assign its rights under the sublicense to UNIVERSITY in the event that this LICENSE

AGREEMENT terminates, which assignment shall be accepted by UNIVERSITY in writing within thirty (30) days of each such assignment.

6.6 After the second anniversary of the EFFECTIVE DATE either party shall inform the other within ten (10) days of a request for a sublicense to develop a LICENSED PRODUCT in a LICENSED FIELD covered by the PATENT RIGHTS ("PROPOSED PRODUCT") made by a third party ("PROSPECTIVE SUBLICENSEE"). If LICENSEE is not then developing, producing, or using a LICENSED PRODUCT in the same LICENSED FIELD as the PROPOSED PRODUCT, and the development or sublicensing of such a LICENSED PRODUCT is not within LICENSEE 's business plans or activities, LICENSEE shall elect one of the following options within sixty (60) days of receipt of notice from UNIVERSITY that they desire LICENSEE to negotiate with the PROSPECTIVE SUBLICENSEE for the purpose of granting a sublicense under the PATENT RIGHTS to develop and commercialize the PROPOSED PRODUCT:

(a) provide UNIVERSITY with written notice, in the form of a reasonable business development plan, that LICENSEE (i) has initiated a development program to commercialize the PROPOSED PRODUCT, or (ii) intends to initiate a development program within eighteen (18) months of the date of said written notice.

(b) begin good faith negotiations with the PROSPECTIVE SUBLICENSEE; or

(c) grant back to UNIVERSITY their rights to the PATENT RIGHTS under this LICENSE AGREEMENT in the LICENSED FIELD in which such PROPOSED PRODUCT would infringe the PATENT RIGHTS.

6.7 If LICENSEE elects to negotiate with the PROSPECTIVE SUBLICENSEE for a sublicense to develop and commercialize the PROPOSED PRODUCT as provided for in Section 6.6(b), LICENSEE shall make a good faith effort to complete negotiations with the PROSPECTIVE SUBLICENSEE within one hundred and eighty (180) days from the date on which it began negotiations. This one hundred and eighty (180) day period may be extended by UNIVERSITY upon documentation provided to UNIVERSITY by LICENSEE that such extension is reasonable in view of the circumstances. For the purposes of this Section, LICENSEE will have made a good faith effort to complete negotiations if it has offered a sublicense to the PROSPECTIVE SUBLICENSEE the terms of which include (i) reasonable financial terms taking into account the field in which the sublicense is being offered and LICENSEE's obligations to UNIVERSITY pursuant to this LICENSE AGREEMENT; (ii) minimum performance requirements which would not be unreasonably burdensome upon the PROSPECTIVE SUBLICENSEE; and (iii) non-financial terms which are consistent with LICENSEE 's obligations to UNIVERSITY pursuant to this LICENSE AGREEMENT. In the event that LICENSEE shall fail to make a good faith effort as required by this Section, LICENSEE shall immediately grant back to UNIVERSITY their rights under this LICENSE AGREEMENT to such PROPOSED PRODUCT and such failure by LICENSEE shall not constitute a breach for which this LICENSE AGREEMENT may be terminated as provided for in Article 7; *provided, however*, that if after LICENSEE's good faith efforts to negotiate such sublicense, LICENSEE and PROSPECTIVE

SUBLICENSEE nevertheless fail to consummate any sublicensing transaction, LICENSEE shall retain all UNIVERSITY PATENT RIGHTS and UNIVERSITY TECHNOLOGY to such PROPOSED PRODUCT and shall not be deemed to have breached the LICENSE AGREEMENT.

6.8 Notwithstanding anything to the contrary contained in Article 3 and Article 6 of the AGREEMENT and without altering the license and sublicense rights granted in Article 2, the parties agree that Section 3.4 and Article 6 shall not apply to sublicenses relating to research and/or development activities including any sublicense related to, for example, the transfer of materials (including samples), research, testing, teaching, or development purposes ("RESEARCH AND DEVELOPMENT ACTIVITIES").

ARTICLE 7

TERM AND TERMINATION

7.1 The term of this LICENSE AGREEMENT shall commence on the EFFECTIVE DATE and, unless terminated sooner as herein provided, shall expire (i) upon expiration of the last to expire patent included in the PATENT RIGHTS, or (ii) if no patents mature from said PATENT RIGHTS, twenty (20) years from the EFFECTIVE DATE.

7.2 It is expressly agreed that, notwithstanding the provisions of any other paragraph of this LICENSE AGREEMENT, if LICENSEE should materially breach this LICENSE AGREEMENT and fail to cure any such breach within thirty (30) days of receipt of written notice from UNIVERSITY describing such breach, then this LICENSE AGREEMENT shall automatically terminate. A material breach is a violation of or failure to keep or perform any material covenant, condition, or undertaking of this LICENSE AGREEMENT, including, but not limited to, (i) the failure to deliver to UNIVERSITY any royalty or other payment at the time or times that the same should be due to UNIVERSITY under this LICENSE AGREEMENT, (ii) failure to use best efforts, taking into account the financial condition of LICENSEE and general business and market conditions, as required in this LICENSE AGREEMENT, (iii) failure to provide reports as specified in Section 4.1, (iv) failure to meet or achieve milestones A and B, set forth in **Exhibit B** and pursuant to Article 5, (v) failure of any executed sublicense to comport with Section 6.3 and 6.7, and (vi) failure to possess and maintain insurance as set forth in Section 11.3.

7.3 If LICENSEE is adjudged bankrupt or insolvent, files a petition for bankruptcy, is the subject of a petition for bankruptcy which is not dismissed within sixty (60) days, or is placed in the hands of a receiver, assignee, or trustee for the benefit of creditors, whether by the voluntary act of LICENSEE or otherwise, then this LICENSE AGREEMENT shall automatically terminate, inasmuch as permitted under applicable and prevailing law.

7.4 LICENSEE may terminate this LICENSE AGREEMENT at any time upon giving written notice of not less than sixty (60) days to UNIVERSITY.

7.5 Upon cancellation of this LICENSE AGREEMENT or upon termination in whole or in part, LICENSEE shall provide UNIVERSITY with a written inventory of all UNIVERSITY TECHNOLOGY and LICENSED PRODUCTS in the process of manufacture, in use or in stock. Except with respect to termination pursuant to Section 7.2, LICENSEE shall have the privilege of disposing of the inventory of such LICENSED PRODUCTS within a period of one hundred and eighty (180) days of such termination, and shall pay to UNIVERSITY [***] percent ([***]%) of NET SALES of such LICENSED PRODUCTS within thirty (30) days of such sale. LICENSEE will also have the right to complete performance of all contracts for the sale of LICENSED PRODUCTS by LICENSEE requiring use of UNIVERSITY TECHNOLOGY, PATENT RIGHTS (except in the case of termination pursuant to Section 7.2) or LICENSED PRODUCTS within and beyond said period of one hundred and eighty (180) days provided that the remaining term of any such contract does not exceed one year. All LICENSED PRODUCTS which are not disposed of as provided above shall be delivered to UNIVERSITY or otherwise disposed of, in UNIVERSITY's sole discretion, and at LICENSEE's sole expense.

7.6 Upon expiration of the term pursuant to Section 7.1, LICENSEE shall have a non-exclusive, irrevocable, perpetual, worldwide, fully-paid license, with the right to sublicense through multiple tiers of sublicenses, to use and practice the UNIVERSITY TECHNOLOGY for any purpose in any field.

7.7 Any termination or cancellation under any provision of this LICENSE AGREEMENT shall not relieve LICENSEE of its obligation to pay any royalty or other fees (including attorney's fees pursuant to Section 3.1 hereof) due or owing at the time of such termination or cancellation.

ARTICLE 8

PATENT PROSECUTION AND MAINTENANCE

8.1 Pursuant to Section 3.1, LICENSEE shall bear the cost of all patent expenses, past and future, associated with the preparation, filing, prosecution, issuance and maintenance of U.S. Patent applications and U.S. Patents included within the PATENT RIGHTS. Such filings and prosecution shall be by counsel of UNIVERSITY's choosing and shall be in the name of UNIVERSITY or UNIVERSITY and joint owner if jointly owned. UNIVERSITY shall keep LICENSEE advised as to the prosecution of such applications by forwarding to LICENSEE copies of all official correspondence, (including, but not limited to, applications, office actions, responses, etc.) relating thereto. LICENSEE shall have the first right to request filings, prosecute, and maintain patent applications and patents included within the PATENT RIGHTS, however, all such action instructed by LICENSEE shall be requested of UNIVERSITY and, UNIVERSITY shall (i) have a right to make comments thereto, and (ii) timely instruct its counsel to act in accord with LICENSEE's instructions. In the event of a disagreement between LICENSEE and UNIVERSITY regarding such prosecution or maintenance, UNIVERSITY shall have the right to make the final decisions for all matters associated with such prosecution and maintenance, however, UNIVERSITY shall be responsible for any and all costs associated with prosecution and maintenance matters in which UNIVERSITY made a final determination pursuant to this section. In order to facilitate LICENSEE's rights to comment and advise

UNIVERSITY, UNIVERSITY will provide, to the extent that it is able, copies of all such official correspondence and any proposed responses by UNIVERSITY at least twenty (20) business days prior to any filing or response deadlines. UNIVERSITY shall diligently prosecute such patent applications included within the Patent Rights and shall seek strong and broad claims under the Patent Rights. UNIVERSITY shall not abandon prosecution or maintenance of any Patent Rights without notifying LICENSEE in a timely manner of UNIVERSITY's intention and reason therefore and providing LICENSEE with reasonable opportunity to comment upon such abandonment and to assume responsibility for prosecution or maintenance of such Patent Rights.

8.2 As regards prosecution and maintenance of foreign patent applications corresponding to the U.S. Patent applications described in Section 8.1 above, LICENSEE shall designate in writing that country or those countries, if any, in which LICENSEE desires such corresponding patent application(s) to be filed. LICENSEE shall pay all costs and legal fees associated with the preparation, filing, prosecuting, issuance and maintenance of such designated foreign patent applications and foreign patents. All such applications shall be in the name of UNIVERSITY or UNIVERSITY and joint owner if jointly owned.

8.3 By written notification to UNIVERSITY at least thirty (30) days in advance of any filing or response deadline, or fee due date, LICENSEE may elect not to have a patent application filed in any particular country which it had previously designated pursuant to Section 8.2 or not to pay expenses associated with prosecuting or maintaining any patent application or patent, provided that LICENSEE pays for all costs incurred up to UNIVERSITY's receipt of such notification. FAILURE TO PROVIDE SUCH NOTIFICATION WILL BE CONSIDERED BY UNIVERSITY TO BE LICENSEE'S NOTICE THAT IT NO LONGER WISHES TO SUPPORT ANY PARTICULAR PATENT(S) OR PATENT APPLICATION(S). Upon such notice, UNIVERSITY may file, prosecute, and/or maintain such patent applications or patents at their own expense and for their own benefit, and any rights or license granted hereunder held by LICENSEE, AFFILIATE or sublicensee(s) relating to the PATENT RIGHTS which comprise the subject of such patent applications or patent and/or apply to the particular country, shall terminate.

8.4 UNIVERSITY may elect to file corresponding patent applications in countries other than those designated by LICENSEE, but in that event UNIVERSITY shall be responsible for all costs associated with such non-designated filings. In such event, LICENSEE shall forfeit its rights under this LICENSE AGREEMENT in the country(ies) where UNIVERSITY exercise their option to file such corresponding patent applications.

ARTICLE 9

INFRINGEMENT

9.1 If the production, sale or use of LICENSED PRODUCTS under this LICENSE AGREEMENT by LICENSEE results in any claim for patent infringement against LICENSEE, LICENSEE shall promptly notify UNIVERSITY thereof in writing, setting forth the facts of such claim in reasonable detail. As between the parties to this LICENSE AGREEMENT, LICENSEE shall have the first and primary right and responsibility, at its own expense, to

defend and control the defense of any such claim against LICENSEE, by counsel of its own choice. It is understood that any settlement, consent judgment or other voluntary disposition of such actions must be approved by UNIVERSITY, such approval not being unreasonably withheld. Subject to the policies of the Board of Governors of UNIVERSITY, UNIVERSITY agrees to cooperate with LICENSEE in any reasonable manner deemed by LICENSEE to be necessary in defending any such action. LICENSEE shall reimburse UNIVERSITY for any out of pocket expenses incurred in providing such assistance.

9.2 In the event that any PATENT RIGHTS licensed to LICENSEE are infringed by a third party or there is misappropriation of any UNIVERSITY TECHNOLOGY by a third party, LICENSEE shall have the primary right, but not the obligation, to institute, prosecute and control any action or proceeding with respect to such infringement or misappropriation, by counsel of its choice, including any declaratory judgment action arising from such infringement or misappropriation. It is understood that any settlement, consent judgment or other voluntary disposition of such actions must be approved by UNIVERSITY, such approval not to be unreasonably withheld. If LICENSEE recovers monetary damages from a third party, then LICENSEE shall first be reimbursed for all un-reimbursed expenses and costs incurred by LICENSEE in connection with the prosecution of such action or proceeding and then shall pay to UNIVERSITY thirty percent (30%) of the balance of such recovered monetary damages.

9.3 If LICENSEE elects not to enforce any patent within the PATENT RIGHTS, then LICENSEE shall notify UNIVERSITY in writing within sixty (60) days of receiving notice that an infringement exists. UNIVERSITY may, at their own expense and control, take steps to defend or enforce any patent within the PATENT RIGHTS and recover, for their own account, any damages, awards or settlements resulting therefrom.

9.4 Notwithstanding the foregoing, and in UNIVERSITY's sole discretion, UNIVERSITY shall be entitled to participate through counsel of their own choosing in any legal action involving the INVENTIONS and PATENT RIGHTS. Nothing in the foregoing sections shall be construed in any way which would limit the authority of the Attorney General of North Carolina.

ARTICLE 10

REPRESENTATIONS

10.1 UNIVERSITY makes no warranties that any patent will issue on UNIVERSITY TECHNOLOGY or INVENTIONS. UNIVERSITY does not warrant the validity of any patent included in the PATENT RIGHTS or that practice under such patents shall be free of infringement.

10.2 UNIVERSITY represents and warrants to LICENSEE that (i) except for licenses granted to the United States Government, UNIVERSITY has not granted any third party any rights or licenses with respect to the PATENT RIGHTS; (ii) the grant of the licenses under this LICENSE AGREEMENT does not conflict with any agreement to which UNIVERSITY is a party; (iii) UNIVERSITY has not received any written charge, complaint, claim, demand or

notice alleging that the development and/or use of the PATENT RIGHTS or the UNIVERSITY TECHNOLOGY infringes or misappropriates the rights of any third party; (iv) no litigation is pending or threatened which contests the right of UNIVERSITY to grant the licenses to LICENSEE under this LICENSE AGREEMENT; and (v) to the best of its knowledge, UNIVERSITY is the exclusive owner of the PATENT RIGHTS and the UNIVERSITY TECHNOLOGY or has the exclusive right to license the PATENT RIGHTS and the UNIVERISITY TECHNOLOGY herein granted in this LICENSE AGREEMENT.

10.3 OTHER THAN AS EXPRESSLY SET FORTH HEREIN, UNIVERSITY DISCLAIMS ALL WARRANTIES WITH REGARD TO PRODUCT(S) AND SERVICE(S) LICENSED UNDER THIS AGREEMENT, INCLUDING, BUT NOT LIMITED TO, ALL WARRANTIES, EXPRESSED OR IMPLIED, OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE. NOTWITHSTANDING ANY OTHER PROVISION OF THIS AGREEMENT, UNIVERSITY ADDITIONALLY DISCLAIMS ALL OBLIGATIONS AND LIABILITIES ON THE PART OF UNIVERSITY AND INVENTORS, FOR DAMAGES, INCLUDING, BUT NOT LIMITED TO, DIRECT, INDIRECT, SPECIAL, AND CONSEQUENTIAL DAMAGES, ATTORNEYS' AND EXPERTS' FEES, AND COURT COSTS (EVEN IF UNIVERSITY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, FEES OR COSTS), ARISING OUT OF OR IN CONNECTION WITH THE MANUFACTURE, USE, OR SALE OF THE PRODUCT(S) AND SERVICE(S) LICENSED UNDER THIS AGREEMENT. LICENSEE ASSUMES ALL RESPONSIBILITY AND LIABILITY ON BEHALF OF ITSELF, ITS AFFILIATE(S) AND ITS SUBLICENSEE(S) FOR LOSS OR DAMAGE CAUSED BY A PRODUCT AND/OR SERVICE MANUFACTURED, USED, OR SOLD BY LICENSEE, ITS SUBLICENSEE(S) AND AFFILIATE(S) WHICH IS A LICENSED PRODUCT(S) AS DEFINED IN THIS AGREEMENT.

ARTICLE 11

INDEMNIFICATION

11.1 In exercising its rights under this LICENSE AGREEMENT, LICENSEE shall fully comply with the requirements of any and all applicable laws, regulations, rules and orders of any governmental body having jurisdiction over the exercise of rights under this LICENSE AGREEMENT. LICENSEE further agrees to indemnify and hold UNIVERSITY harmless from and against any costs, expenses, attorney's fees, citation, fine, penalty and liability of every kind and nature which might be imposed by reason of any asserted or established violation of any such laws, order, rules and/or regulations and not resulting from the negligence or willful misconduct of UNIVERSITY.

11.2 LICENSEE agrees to indemnify, hold harmless and defend UNIVERSITY, its officers, employees, and agents, against any and all claims, suits, losses, damage, costs, fees, and expenses (excluding any such claims, suits, losses, damage, costs, fees or expenses resulting from the negligence or willful misconduct of UNIVERSITY) asserted by third parties, both government and private, resulting from or arising out of (a) the exercise of this LICENSE AGREEMENT by LICENSEE, AFFILIATES, or sublicensees of either of the foregoing, (b) any such sublicensee's use of the PATENT RIGHTS or UNIVERSITY TECHNOLOGY, or (c) any

LICENSED PRODUCTS made by LICENSEE, AFFILIATES, or sublicensees of either of the foregoing.

11.3 LICENSEE is required to maintain in force at its sole cost and expense, with reputable insurance companies, general liability insurance and products liability insurance coverage in an amount reasonably sufficient to protect against liability under Sections 11.1 and 11.2 above. UNIVERSITY shall have the right to ascertain from time to time that such coverage exists, such right to be exercised in a reasonable manner.

11.4 LICENSEE agrees to indemnify, hold harmless, and defend UNIVERSITY, its officers, employees, and agents against any and all claims, suits, losses, damage, costs, fees, and expenses asserted by third parties, both government and private, resulting from or arising out of the exercise of RESEARCH AND DEVELOPMENT ACTIVITIES under Section 6.8, excluding any such claims, suits, losses, damage, costs, fees, or expenses resulting from the negligence or willful misconduct of UNIVERSITY.

ARTICLE 12

MISCELLANEOUS

12.1 Confidentiality. LICENSEE shall keep confidential and not disclose any unpublished UNIVERSITY TECHNOLOGY or any patent applications furnished by UNIVERSITY prior to the EFFECTIVE DATE or pursuant to Sections 2.1 and 2.2 to third parties (other than employees, consultants, advisors, collaborators, prospective sublicensees, investors or prospective investors in the LICENSEE's equity securities, all under obligations of confidentiality) during the term of this LICENSE AGREEMENT or any time thereafter. Disclosure may be made to third parties of any such UNIVERSITY TECHNOLOGY or document related to or embodying PATENT RIGHTS at any time (a) with the prior written consent of UNIVERSITY or (b) after the same shall have become public through no fault of LICENSEE. Notwithstanding anything to the contrary contained in this Section 12.1, LICENSEE shall have the right to incorporate UNIVERSITY TECHNOLOGY that has been included in any filed patent application into patent applications filed by or on behalf of LICENSEE for the purpose of supporting claims in such patent applications that cover inventions to which LICENSEE holds an ownership interest.

In connection with this LICENSE AGREEMENT, LICENSEE may communicate and deliver to UNIVERSITY certain confidential or proprietary information of LICENSEE, its AFFILIATES or sublicensees, including, without limitation, certain scientific and manufacturing information and plans, marketing and business plans, financial statements, and audit reports (collectively, "LICENSEE CONFIDENTIAL INFORMATION"). During the term of this LICENSE AGREEMENT and for a period of five (5) years thereafter, UNIVERSITY shall keep confidential and shall not disclose any LICENSEE CONFIDENTIAL INFORMATION to any third party, and shall not use any LICENSEE CONFIDENTIAL INFORMATION for any purpose except for the purposes contemplated by this LICENSE AGREEMENT. Notwithstanding the foregoing, the UNIVERSITY may disclose LICENSEE CONFIDENTIAL INFORMATION to the extent that such disclosure is made in response to a valid order of a court

of competent jurisdiction or other governmental or regulatory body of competent jurisdiction or is required to comply with the Public Disclosure Act or any other applicable law or regulation; provided, however, that the UNIVERSITY will first have given notice to LICENSEE and given the LICENSEE a reasonable opportunity to quash such order and to obtain a protective order requiring that the LICENSEE CONFIDENTIAL INFORMATION and documents that are the subject of such required disclosure be held in confidence by the applicable court or governmental or regulatory body or, if disclosed, be used only for the purposes for which the order was issued or as otherwise authorized by law; and provided, further that if a disclosure order is not quashed or a protective order is not obtained, the LICENSEE CONFIDENTIAL INFORMATION disclosed in response to such court, governmental order, law or regulation will be limited to that information which is legally required to be disclosed.

12.2 Assignability. This LICENSE AGREEMENT is binding upon and shall inure to the benefit of the UNIVERSITY, their successors and assigns. However, this LICENSE AGREEMENT shall be personal to LICENSEE, and it is not assignable by LICENSEE to any other person or entity without the written consent of UNIVERSITY, which consent shall not be unreasonably withheld; *provided, however*, that LICENSEE shall be free to assign this LICENSE AGREEMENT without the consent of the UNIVERSITY to an AFFILIATE or in connection with any sale of substantially all of

its capital stock or of all of its assets to which this LICENSE AGREEMENT relates. In the event of such assignment without consent of UNIVERSITY, LICENSEE agrees to provide reasonable notice to UNIVERSITY prior to any assignment of this LICENSE AGREEMENT.

12.3 Waiver. It is agreed that no waiver by either party hereto of any breach or default of any of the covenants or agreements herein set forth shall be deemed a waiver as to any subsequent and/or similar breach or default.

12.4 Use of UNIVERSITY's Name. Other than disclosure of the existence and terms of this LICENSE AGREEMENT by LICENSEE in the ordinary course of business, including without limitation, disclosure to prospective sublicensees, investors, prospective investors, lenders, collaborators and strategic partners, the use of the name of UNIVERSITY, CALTECH, or NCSU or any contractions thereof, in any manner in connection with the exercise of this LICENSE AGREEMENT is expressly prohibited without the prior written consent of UNIVERSITY.

12.5 Independent Contractor Status. Neither party hereto is an agent of the other for any purpose

12.6 U.S. Manufacture. It is agreed, if and as required by 35 U.S.C. § 204, that any LICENSED PRODUCTS used or sold in the United States shall be substantially manufactured in the United States

12.7 Required Transfer. UNIVERSITY and LICENSEE agree that LICENSEE shall supply materials to UNIVERSITY for their research in accordance with this Agreement upon prior written agreement.

12.8 Notice. Any notice required or permitted to be given to the parties hereto shall be in writing and deemed to have been properly given if delivered in person or mailed by first-class mail to the other parties at the appropriate address as set forth below. Other addresses may be designated in writing by the parties during the term of this LICENSE AGREEMENT.

UNIVERSITY

Director
Office of Technology Development
CB #4105, 308 Bynum Hall
Univeristy of North Carolina at Chapel Hill
Chapel Hill, NC 27599-4105

LICENSEE

Liquidia Technologies, Inc.

Mailing Address:
P.O. Box 110085
RTP, NC 27709

Shipping Address:
419 Davis Drive, Suite 100
Durham, NC 27713

12.9 Governing Law and Venue. This LICENSE AGREEMENT shall be interpreted and construed in accordance with the laws of the State of North Carolina. The State and Federal Courts of North Carolina shall have exclusive jurisdiction to hear any legal action arising out of this LICENSE AGREEMENT.

12.10 Complete Agreement. It is understood and agreed between UNIVERSITY and LICENSEE that this LICENSE AGREEMENT constitutes the entire agreement, both written and oral, between the parties, and that all prior agreements respecting the subject matter hereof, either written or oral, expressed or implied, shall be abrogated, canceled, and are null and void and of no effect, including each ORIGINAL LICENSE AGREEMENT.

12.11 Severability. In the event that a court of competent jurisdiction holds any provision of this LICENSE AGREEMENT to be invalid, such holding shall have no effect on the remaining provisions of this LICENSE AGREEMENT, and they shall continue in full force and effect.

12.12 Survival of Terms. The provisions of Sections 3.6, 3.7, 4.3, 4.4, 4.5, 6.5, 7.4, 7.5, 7.6, 7.7, 12.1, 12.4, 12.8, 12.9, 12.10, and 12.12 and Articles 10 and 11 shall survive the expiration or termination of this LICENSE AGREEMENT.

IN WITNESS WHEREOF, UNIVERSITY and LICENSEE have executed this LICENSE AGREEMENT, in duplicate originals, by the duly authorized respective officers.

THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

/s/ Catherine Innes

LICENSEE

/s/ Bruce W. Boucher

Signature	Signature
Catherine Innes	Bruce W. Boucher
Printed Name	Printed Name
Director, Office of Technology Development	President
Title	Title
12/16/08	12/16/08
Date	Date

Exhibit A

PATENT RIGHTS

UNC Ref. No.	JWT or AB Ref. No.	LIQ Ref. No.	Title	Country	App. No./Patent No.	Filing Date	Status
04-0013	421/117	64549-5001	Photocurable Perfluoropolyethers for Use as Novel Materials in Microfluidic Devices	National	US 10/572,764 plus Foreign Counterparts filed in AU, CA, CN, EP, IN, JP, MX, SG	21/Mar/06	Pending
04-0067	421/96	64549-5003	Functional Materials and Novel Methods for the Fabrication of Microfluidic Devices	National	US 10/589,222 plus Foreign Counterparts filed in AU, CA, CN, EP, JP, SG	11/Aug/06	Pending
04-0067	421/96	64549-5003/01	Methods and Materials for Fabricating Microfluidic Devices	US	US 60/799,317 plus foreign counterparts filed in EP, CN	10/May/05	Pending
04-0104	421/90	64549-5002	Methods for Fabricating Isolated Micro-and Nanostructures Using Soft or Imprint Lithography	National	US 10/583,570 plus Foreign Counterparts filed in AU, BR, CA, CN, EP, IL, IN, JP, KR, MX, SG, ZA	19/Jun/06	Pending
04-0104	421/90	64549-5020	Nanoparticle Fabrication Methods, Systems, and Materials	National	US 11/921,614 plus foreign counterparts filed in JP, EP, BR, CN, CA, AU, IN, MX	19/Jun/06	Pending
04-0104	421/90	64549-5021	Materials and Methods for Fabricating Isolated Micro-and Nano- Structures Having Chemical Functionality	PCT	PCT/US06/034997	7/Sept/06	Expired
04-0104	421/90	64549-5023	Taggants and Methods and Systems for	National	US 12/162,264	29/Jan/07	Pending

			Fabricating Same				
04-0104	421/90	64549-5022	Isolated and Fixed Micro and Nano Structures and Methods thereof	US	US 11/594,023 plus foreign counterpart filed in EP	7/Nov/06	Pending
04-0104	421/90	64549-5033	Micro and Nano-Carriers For Biological Systems	PCT	PCT US2007/016935	27/Jul/07	Pending

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

05-0008	421/136	64549-5005	Low Surface Energy Polymeric Material for Use in Liquid Crystal Displays	National	US 11/883,304 plus foreign counterparts in JP, KR, CN, EP, SG,	3/Feb/06	Pending
07-0006	421/90/5	064549-5026	Micro and Nano-particles for Photovoltaics and Methods of Making the Same	National	US case filed 9/Nov/2008 plus foreign counterparts in EP, JP, KR, and CN	09/May/06	Pending
07-0014	421/189/PR OV	064549- 5009PR	New Materials Based on PFPE With Hydrophilic Components	US	US 60/836,633	09/Aug/06	Expired
07-0028	421/194 PCT	064549-5010	Nanoparticle Compositions for Controlled Delivery of Nucleic Acids	PCT	PCT/US07/21680	09/Oct/06	Pending
07-0044	421/187/2 PROV	064549-5002P15	Nano-Molding of Large Area, 2-D Array Photovoltaic Cells	US	US 60/857,669	07/Nov/06	Expired
07-0074	421/90/10 PCT	064549-5028W0	Discrete Size and Shape Specific Pharmaceutical Organic Nanoparticles	PCT	PCT/US2008/055109	27/Feb/07	Pending
07-0079	421/208 PCT	064549-5027W0	Discrete Size and Shape Specific Organic Nanoparticles Designed to Illicit an Immune Response	PCT	PCT/US2008/058022	23/Mar/07	Pending
07-0047	421/197 PCT	64549-5012/WO	Polymer Particle Composite Having High Fidelity Order, Size, and Shape Particles	PCT	PCT/US2007/023805	15/Nov/06	Pending
		64549-5038PR	Delivery Apparatus and Associated Method	PROV	US 61/031,083	25/Feb/08	Pending
		64549-5041PR	Compositions and Methods for Intracellular Delivery and Release of Cargo	PROV	61/047,980	25/Apr/08	Pending
08-0090	35052/3399 94	64549-5042PR	Degradable Compounds and Methods of Use Thereof. Particularly with Particle Replication in Non-Wetting Templates	PROV	US 61/048,032	25/Apr/08	Pending

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

		64549-5043PR	High Fidelity Through Hole Film, and Associated Method	PROV	US 61/075,103	24/Jun/08	Pending

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

Exhibit B

MILESTONES

Capitalized terms set out in this Exhibit B shall be defined as provided in the LICENSE AGREEMENT.

Milestones A through B
Financing

A) LICENSEE shall obtain seed funding of at least fifty thousand dollars ($50,000.00) by March 1, 2005.

B) LICENSEE shall obtain cumulative equity financing of at least two million dollars ($2,000,000.00) by March 1, 2006 (the "TRIGGER FINANCING").

Milestones C through G
Commercialize any LICENSED PRODUCT(S) by Multiple Pathways

By the dates indicated below, LICENSEE shall submit a detailed plan for commercialization of a LICENSED PRODUCT which will be sold to or developed by a business entity (i) with which LICENSEE has not previously established a business relationship to develop and commercialize LICENSED PRODUCT(S) and/or (ii) to which LICENSEE has not previously sold a LICENSED PRODUCT ("NEW BUSINESS ENTITY"). The LICENSED PRODUCT(S) may be commercialized by LICENSEE, LICENSEE's customers, sublicensees, business partners or AFFILIATES. For the purposes of Milestones C through G, NEW BUSINESS ENTITY may mean a business division within a company with which LICENSEE has previously established a business relationship with the company, but not with the said business division.

C) Submit detailed plan for commercialization of LICENSED PRODUCT.
By January 1, 2007

D) Submit detailed plan for commercialization of LICENSED PRODUCT.
By January 1, 2008 with a NEW BUSINESS ENTITY.

E) Submit detailed plan for commercialization of LICENSED PRODUCT.
By January 1, 2009 with a NEW BUSINESS ENTITY.

F) Submit detailed plan for commercialization of LICENSED PRODUCT.
By January 1, 2010 with a NEW BUSINESS ENTITY.

G) Submit detailed plan for commercialization of LICENSED PRODUCT
By January 1, 2011 with a NEW BUSINESS ENTITY.

Milestones H through K
Commercialize LICENSED PRODUCT(S) in Multiple LICENSED FIELDS

By the dates indicated below, LICENSEE will submit a detailed plan for commercialization of a LICENSED PRODUCT in a new LICENSED FIELD. Such new LICENSED FIELD shall be distinctly different from LICENSED FIELDS in which LICENSED PRODUCTS have been or are in the process of being commercialized.

H) Submit detailed plan for commercialization of LICENSED PRODUCT.
By January 1, 2009 in new LICENSED FIELD.

I) Submit detailed plan for commercialization of LICENSED PRODUCT.
By January 1, 2011 in new LICENSED FIELD.

J) Submit detailed plan for commercialization of LICENSED PRODUCT.
By January 1, 2013 in new LICENSED FIELD.

K) Submit detailed plan for commercialization of LICENSED PRODUCT.
By January 1, 2015 in new LICENSED FIELD.

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

Milestones L through P
Commercial Sale of LICENSED PRODUCT(S) in any LICENSED FIELD

By the dates indicated below, LICENSEE, LICENSEE's AFFILIATE or LICENSEE's sublicensee shall make a COMMERCIAL SALE of a LICENSED PRODUCT; for each milestone listed below, such LICENSED PRODUCT may be in any LICENSED FIELD and shall be distinctly different from any previously commercialized LICENSED PRODUCTS.

L) Commercial sale of first LICENSED PRODUCT or execution of first license agreement for development & commercialization of such a LICENSED PRODUCT.
By January 1, 2009

M) Commercial sale of LICENSED PRODUCT which has not previously been commercialized, or execution of a license agreement for development & commercialization of such a LICENSED PRODUCT.
By January 1, 2012

N) Commercial sale of LICENSED PRODUCT which has not previously been commercialized.
By January 1, 2015.

O) Commercial sale of LICENSED PRODUCT which has not previously been commercialized.
By January 1, 2018.

P) Commercial sale of LICENSED PRODUCT which has not previously been commercialized.
By January 1, 2021.

As a point of clarification for Milestones C through K:

If by January 1, 2007, LICENSEE submits a plan for commercialization of a LICENSED PRODUCT in any SPECIFIC LICENSED FIELD, then Milestone C is met.

If by January 1, 2008, LICENSEE submits a second plan for commercialization of a LICENSED PRODUCT in a SPECIFIC LICENSED FIELD which is distinctly different from the SPECIFIC LICENSED FIELD covered in the previous submitted plan, then BOTH Milestone D and H arc met.

This holds true for similar situations relating to Milestones C through K.

FIRST AMENDMENT TO AMENDED AND RESTATED LICENSE AGREEMENT

FIRST AMENDMENT TO AMENDED AND RESTATED LICENSE AGREEMENT, ("Amendment") effective as of June 8, 2009 ("Effective Date"), by and between The University of North Carolina at Chapel Hill, having an address at 104 Airport Drive, CB# 1350, Chapel Hill, North Carolina 27599-1350, ("University"), and Liquidia Technologies, Inc, a corporation existing under the laws of Delaware, and having its principal headquarters at Suite 100, 419 Davis Drive, Durham, NC 27713 ("Licensee").

WITNESSETH:

WHEREAS, Licensee and University have entered into an Amended and Restated License Agreement dated as of December 15, 2008 ("Agreement"); and

WHEREAS; Licensee and University wish to amend the Agreement upon the terms and conditions set forth below.

NOW, THEREFORE, in consideration of the promises and mutual covenants contained in the Agreement and herein, the parties hereto agree as follows:

1. Sections 3.4.1 and 3.4.2 of Section 3.4 of Article 3 are hereby amended and replaced in their entirety with the following new Sections 3.4.1 and 3.4.2:

3.4.1 In respect to sublicenses granted by LICENSEE under Article 6 below, LICENSEE shall pay to UNIVERSITY twenty percent (20%) of any fees, minimum royalties, and any consideration other than royalties that LICENSEE receives from each sublicensee for any rights granted under a sublicense agreement within thirty (30) days of receiving any such payments from each such sublicense. LICENSEE shall not be required to make such payment to UNIVERSITY on fees or other consideration received by LICENSEE from sublicensees as: (i) payment or reimbursement for research and development (including joint development) activities by LICENSEE in connection with LICENSED PRODUCTS or the INVENTIONS (provided that (a) LICENSEE provides to UNIVERSITY the statement of work, including, to the extent available, a reasonable budget, for each research and development program prior to engaging in each such research and development program and (b) any subsequent sale of such LICENSED PRODUCTS shall be subject to the royalty calculations herein); (ii) payment for LICENSEE services provided in connection with any sublicense provided that such services do not require use of INVENTIONS or UNIVERSITY TECHNOLOGY, (iii) a loan that is not convertible to shares of LICENSEE's stock and that bears market rate interest, (iv) the purchase of LICENSEE's equity

securities at fair market value, (v) reimbursement of patent costs, or (vi) proceeds from private or governments research grants to LICENSEE.

3.4.2 LICENSEE shall pay to UNIVERSITY [***] percent ([***]%) of royalty payments LICENSEE receives from each sublicensee; provided, however, that in no event shall the royalty rate paid by LICENSEE to UNIVERSITY be less than [***] percent ([***]%) of NET SALES of LICENSED PRODUCTS sold by each sublicensee and no greater than [***] percent ([***]%) of NET SALES of LICENSED PRODUCTS sold by each sublicensee. LICENSEE shall pay to UNIVERSITY said royalties on the LICENSED PRODUCTS concurrently with the making of quarterly written reports as provided in Section 4.1 below. LICENSEE may request that UNIVERSITY accept a royalty rate less than [***] percent ([***]%) of NET SALES of LICENSED PRODUCTS sold by a sublicensee, provided that LICENSEE submits financial details that justify such request; such request shall be denied or accepted at UNIVERSITY's sole discretion. In the event that the definition of "net sales" agreed to between LICENSEE and one of its sublicensees differs from the definition of NET SALES herein, the parties shall execute a consent letter memorializing such net sales definition between LICENSEE and such sublicensee and providing that such definition shall be used for purposes of the calculation set forth in this Section 3.4.2.

2. Article 5 shall be amended and replaced in its entirety with the following new Article 5.

5.1 LICENSEE will use commercially reasonable efforts, taking into account the financial condition of LICENSEE and general business and market conditions, to meet all obligations under the performance milestones set forth in Exhibit B, which is attached hereto. If LICENSEE is unable to satisfy the milestones set forth in Exhibit B, UNIVERSITY hereby agrees that:

(i) LICENSEE shall have one hundred and twenty (120) days from receiving notice from UNIVERSITY of LICENSEE's failure to meet or achieve a milestone to cure any such failure ("Cure Period"). Any efforts or activities undertaken by LICENSEE's AFFILIATES or sublicensees will be treated as LICENSEE's efforts and activities for purposes of determining LICENSEE's compliance with the terms of this Article 5.

(ii) During the 120 day Cure Period, UNIVERSITY and LICENSEE shall negotiate in good faith to revise the milestone(s) to reflect an appropriate milestone(s) at the time taking into account the financial condition of LICENSEE and general business and market conditions.

(iii) If LICENSEE is unable to cure a failure to satisfy a milestone set forth in Exhibit B under Section 5.1(i) and UNIVERSITY and

LICENSEE have not reached an agreement to revise such milestone under Section 5.1(ii) then UNIVERSITY shall have the right to elect to have LICENSEE and UNIVERSITY negotiate in good faith to have one SPECIFIC LICENSED FIELD excluded from this LICENSE AGREEMENT. In the event that LICENSEE and UNIVERSITY cannot agree on such SPECIFIC LICENSED FIELD to be excluded from this LICENSE AGREEMENT within ninety (90) days of UNIVERSITY'S notice of election to negotiate in good faith to have one SPECIFIC LICENSED FIELD excluded from this LICENSE AGREEMENT ("NEGOTIATION PERIOD") then LICENSEE shall designate the SPECIFIC LICENSED FIELD to be so excluded by written documentation to UNIVERSITY within thirty (30) days of the expiration of such NEGOTIATION PERIOD ("DESIGNATION PERIOD"). In the event that LICENSEE fails to designate the SPECIFIC LICENSED FIELD prior to the expiration of the DESIGNATION PERIOD, then UNIVERSITY, at its sole discretion, shall be entitled to select the SPECIFIC LICENSED FIELD to be excluded from the then-existing LICENSED FIELD; provided, however, that UNIVERSITY shall not exclude from this LICENSE AGREEMENT any SPECIFIED LICENSED FIELD for which LICENSEE has (a) previously provided a detailed commercialization plan, (b) executed a license, sublicense or other commercial agreement, including a license, sublicense or other commercial agreement with a subsidiary or new entity, or (c) in which LICENSEE or its sublicensees or AFFILIATES have made a commercial sale of LICENSED PRODUCT. In such event, UNIVERSITY shall select the SPECIFIC LICENSED FIELD to be excluded and the LICENSE AGREEMENT shall be amended to reflect any exclusion of such SPECIFIC LICENSED FIELD from this LICENSE AGREEMENT within thirty (30) days of the expiration of the DESIGNATION PERIOD.

3. Sections 6.1, 6.3, 6.4, and 6.5, are hereby amended and replaced in their entirety with the following new Sections 6.1, 6.3, 6.4, and 6.5a and 6.5b:

6.1 LICENSEE may sublicense any or all of the rights licensed hereunder, including the right to sublicense through multiple tiers of sublicenses, provided that LICENSEE notifies UNIVERSITY in writing and provides UNIVERSITY with a copy of each sublicense agreement and each amendment thereto within thirty (30) days after execution of each such license agreement and amendment.

6.3 LICENSEE shall require that all sublicense agreements be consistent with the terms, conditions and limitations of the licenses granted to LICENSEE under this LICENSE AGREEMENT. In addition, LICENSEE'S sublicense agreements shall (i) include the sublicensee's acknowledgment of the disclaimer of warranty and limitation on UNIVERSITY's liability, pursuant to Article 10, and (ii) stipulate

that any LICENSED PRODUCTS used or sold in the United States shall be substantially manufactured in the United States if and as required by 35 U.S.C. § 204, as specified in Section 12.6. Notwithstanding anything to the contrary contained in this Section 6.3, the requirements of the foregoing clauses (i) and (ii) shall not apply in the case of any trial or similar sublicense granted by LICENSEE solely for the purpose of determining the suitability of any INVENTIONS for a potential development, manufacturing commercialization or other business relationship.

6.4 Upon execution of each sublicense agreement, LICENSEE agrees to use its commercially reasonable efforts to enforce each sublicensee's compliance with each such sublicense agreement, and LICENSEE may terminate any sublicense agreement if the sublicensee is in material breach of the sublicense agreement and fails to cure such breach within sixty (60) days of LICENSEE's discovery of such breach. Material breach by a sublicense shall include, but not be limited to, (i) failure to submit to LICENSEE an accurate report of NET SALES and (ii) failure to pay LICENSEE amounts due and owed under the sublicense agreement on the dates such payments are due.

6.5.a Any sublicense granted in accordance with this LICENSE AGREEMENT prior to expiration of this LICENSE AGREEMENT shall survive any such expiration.

6.5.b LICENSEE shall cause every sublicense agreement granted after June 1, 2009, and in accordance with this LICENSE AGREEMENT to provide LICENSEE the right to assign its rights under the sublicense to UNIVERSITY in the event that this LICENSE AGREEMENT terminates, such assignment shall be accepted by UNIVERSITY in writing within thirty (30) days of receiving written notice from LICENSEE of each such assignment.

4. Sections 6.6 and 6.7 are hereby deleted in their entirety and replaced with the following new Section 6.6 and 6.7.

6.6 In the event that a third party company ("PROSPECTIVE SUBLICENSEE") wishes to commercialize a product for which they require a license under the PATENT RIGHTS ("PROPOSED PRODUCT") in a field that LICENSEE, its AFFILIATES or any sublicensee of either of the foregoing is not then developing, producing, or using the PATENT RIGHTS, then LICENSEE may elect one of the following:

(a) provide UNIVERSITY with written notice, in the form of a reasonable business development plan, that LICENSEE (i) has initiated a development program to commercialize the PROPOSED PRODUCT, or (ii) intends to initiate a development program within eighteen (18) months of the date of said written notice; or

(b) begin good faith negotiations with the PROSPECTIVE SUBLICENSEE; or

(c) grant back to UNIVERSITY their rights to the PATENT RIGHTS under this LICENSE AGREEMENT in the LICENSED FIELD in which such PROPOSED PRODUCT would infringe the PATENT RIGHTS.

6.7 If LICENSEE elects to negotiate with the PROSPECTIVE SUBLICENSEE for a sublicense to develop and commercialize the PROPOSED PRODUCT as provided for in Section 6.6(b), LICENSEE shall make a good faith effort to complete negotiations with the PROSPECTIVE SUBLICENSEE within one hundred and eighty (180) days from the date on which it began negotiations. This one hundred and eighty (180) day period may be extended by UNIVERSITY upon documentation provided to UNIVERSITY by LICENSEE that such extension is reasonable in view of the circumstances. For the purposes of this Section, LICENSEE will have made a good faith effort to complete negotiations if it has offered a sublicense to the PROSPECTIVE SUBLICENSEE the terms of which include (i) reasonable financial terms taking into account the field in which the sublicense is being offered and LICENSEE's obligations to UNIVERSITY pursuant to this LICENSE AGREEMENT; (ii) minimum performance requirements which would not be unreasonably burdensome upon the PROSPECTIVE SUBLICENSEE; and (iii) non-financial terms which are consistent with LICENSEE 's obligations to UNIVERSITY pursuant to this LICENSE AGREEMENT. In the event that LICENSEE and PROSPECTIVE SUBLICENSEE nevertheless fail to consummate any sublicensing transaction, LICENSEE shall provide written notification to UNIVERISTY providing details of the reasons for such failure and shall retain all UNIVERSITY PATENT RIGHTS and UNIVERSITY TECHNOLOGY to such PROPOSED PRODUCT and shall not be deemed to have breached the LICENSE AGREEMENT.

5. Section 7.2 is hereby deleted in its entirety and replaced with the following new Section 7.2:

7.2 It is expressly agreed that, notwithstanding the provisions of any other paragraph of this LICENSE AGREEMENT, upon the occurrence of any of the following events that remain uncured after sixty (60) days of receipt of written notice from UNIVERSITY describing such occurrence, then this LICENSE AGREEMENT shall automatically terminate: (i) the failure to deliver to UNIVERISTY any royalty or other payment at the time or times that the same should be due to UNIVERSITY under this LICENSE AGREEMENT, (ii) failure to provide reports as specified in Sections 4.1 and 4.2, (iii) the failure to keep complete, true and accurate accounting as specified in Section 4.3, (iv) failure to allow representative of UNIVERSITY to inspect LICENSEE's books and records as specified in Section 4.3, (v) failure of LICENSEE to use its commercially reasonable efforts to enforce sublicense's compliance as specified in Section 6.4, (vi) failure of LICENSEE to elect to terminate any sublicense agreement if the

sublicensee is in material breach and fails to cure such breach as specified in Section 6.4 and LICENSEE believes that termination of such sublicense agreement is a commercially reasonable action under the circumstances, (vii) failure to indemnify and hold UNIVERSITY harmless as specified in Section 11.1, 11.2, and 11.4 and (viii) failure to possess and maintain insurance as set forth in Section 11.3.

6. Section 7.5 of Article 7 of the Agreement is hereby amended and replaced in its entirety with the following new Section 7.5:

7.5 Upon early termination of this LICENSE AGREEMENT in whole or in part, LICENSEE shall provide UNIVERSITY with a written inventory of all UNIVERSITY TECHNOLOGY and LICENSED PRODUCTS in the process of manufacture, in use or in stock. LICENSEE shall have the privilege of disposing of the inventory of such LICENSED PRODUCTS within a period of one hundred and eighty (180) days of such termination, and shall pay to UNIVERSITY one and [***] percent ([***]%) of NET SALES of such LICENSED PRODUCTS within thirty (30) days of such sale. LICENSEE will also have the right to complete performance of all contracts for the sale of LICENSED PRODUCTS by LICENSEE requiring use of UNIVERSITY TECHNOLOGY, PATENT RIGHTS or LICENSED PRODUCTS within and beyond said period of one hundred and eighty (180) days provided that the remaining term of any such contract does not exceed one year. All LICENSED PRODUCTS which are not disposed of as provided above shall be delivered to UNIVERSITY or otherwise disposed of, in UNIVERSITY's sole discretion, and at LICENSEE's sole expense.

7. Sections 9.1 and 9.2 of Article 9 of the Agreement are hereby amended and replaced in their entirety with the following new Sections 9.1 and 9.2:

9.1 If the production, sale or use of LICENSED PRODUCTS under this LICENSE AGREEMENT by LICENSEE results in any claim for patent infringement against LICENSEE, LICENSEE shall promptly notify UNIVERSITY thereof in writing, setting forth the facts of such claim in reasonable detail. As between the parties to this LICENSE AGREEMENT, LICENSEE shall have the first and primary right and responsibility, at its own expense, to defend and control the defense of any such claim against LICENSEE, by counsel of its own choice. It is understood that any settlement, consent judgment or other voluntary disposition of such actions must be approved by UNIVERSITY, such approval not being unreasonably withheld. Subject to the policies of the Board of Governors of UNIVERSITY, UNIVERSITY agrees to cooperate with LICENSEE in any reasonable manner deemed by LICENSEE to be necessary in defending any such action. LICENSEE shall reimburse UNIVERSITY for any out of pocket expenses incurred in providing such assistance. Notwithstanding any other provision of this Agreement, all royalties, upfront, milestone, and/or sales-based payments, and damages paid by LICENSEE and resulting from any claim for infringement against LICENSEE, a sublicensee of LICENSEE, or UNIVERSITY

and based on LICENSEE or sublicensee's use of UNIVERSITY TECHNOLOGY or PATENT RIGHTS shall be offset against future royalties, fees, or other payments LICENSEE owes to UNIVERSITY hereunder. All other fees and expenses, including legal fees and related expenses, incurred by LICENSEE in defending UNIVERSITY TECHNOLOGY or PATENT RIGHTS

against claims for patent infringement shall be offset against future royalties, fees, and other payments LICENSEE owes to UNIVERSITY upon written approval from UNIVERSITY, such approval not to be unreasonably withheld.

9.2 In the event that any PATENT RIGHTS licensed to LICENSEE are infringed by a third party or there is misappropriation of any UNIVERSITY TECHNOLOGY by a third party, LICENSEE shall have the primary right, but not the obligation, to institute, prosecute and control any action or proceeding with respect to such infringement or misappropriation, by counsel of its choice, including any declaratory judgment action arising from such infringement or misappropriation. It is understood that any settlement, consent judgment or other voluntary disposition of such actions must be approved by UNIVERSITY, such approval not to be unreasonably withheld. If LICENSEE recovers monetary damages from a third party, then LICENSEE shall first be reimbursed for all un-reimbursed expenses and costs incurred by LICENSEE in connection with the prosecution of such action or proceeding and then shall pay to UNIVERSITY twenty percent (20%) of the balance of such recovered monetary damages.

8. Section 10.3 of Article 10 of the Agreement is hereby amended and replaced in its entirety with the following new Section 10.3:

10.3 OTHER THAN AS EXPRESSLY SET FORTH HEREIN, UNIVERSITY DISCLAIMS ALL WARRANTIES WITH REGARD TO PRODUCT(S) AND SERVICE(S) LICENSED UNDER THIS AGREEMENT, INCLUDING, BUT NOT LIMITED TO, ALL WARRANTIES, EXPRESSED OR IMPLIED, OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE. OTHER THAN AS EXPRESSLY SET FORTH HEREIN, UNIVERSITY ADDITIONALLY DISCLAIMS ALL OBLIGATIONS AND LIABILITIES ON THE PART OF UNIVERSITY AND INVENTORS, FOR DAMAGES, INCLUDING, BUT NOT LIMITED TO, DIRECT, INDIRECT, SPECIAL, AND CONSEQUENTIAL DAMAGES, ATTORNEYS' AND EXPERTS' FEES, AND COURT COSTS (EVEN IF UNIVERSITY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, FEES OR COSTS), ARISING OUT OF OR IN CONNECTION WITH THE MANUFACTURE, USE, OR SALE OF THE PRODUCT(S) AND SERVICE(S) LICENSED UNDER THIS AGREEMENT. LICENSEE ASSUMES ALL RESPONSIBILITY AND LIABILITY ON BEHALF OF ITSELF, ITS AFFILIATE(S) AND ITS SUBLICENSEE(S) FOR LOSS OR DAMAGE CAUSED BY A PRODUCT AND/OR SERVICE MANUFACTURED, USED, OR SOLD BY LICENSEE, ITS SUBLICENSEE(S) AND AFFILIATE(S) WHICH IS A LICENSED PRODUCT(S) AS DEFINED IN THIS AGREEMENT.

9. Exhibit A to the Agreement is hereby amended and replaced in its entirety with the Exhibit A attached hereto.

10. As consideration for UNIVERSITY amending the PATENT RIGHTS and Exhibit A to include UNIVERSITY file 09-0078, LICENSEE shall pay UNIVERSITY five thousand dollars ($5,000) within thirty (30) days of the Effective Date of this Amendment.

11. Exhibit B to the Agreement is hereby deleted in its entirety and replaced with the new Exhibit B attached hereto.

12. This Amendment may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

Signature Page Follows

IN WITNESS WHEREOF, the parties hereto have executed this First Amendment to Amended and Restated License Agreement by their duly authorized officers or representatives.

THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL	LIQUIDIA TECHNOLOGIES, INC.
By: */s/ Catherine Innes*	By: */s/ Bruce Boucher*
Catherine Innes	Bruce Boucher
Director, Office of Technology Development	President

EXHIBIT A

PATENT RIGHTS

UNC Ref. No.	JWT or AB Ref. No.	LIQ Ref.No	Title	Country	App. NoJPatent No.	Filing Date	Status
04-0013	421/117	64549-5001	Photocurable Perfluoropolyethers for Use as Novel Materials in Microfluidic Devices	National	US 10/572,764 plus Foreign Counterparts filed in AU, CA, CN, EP, IN, JP ,MX ,SG	21/Mar/06	Pending
04-0067	421/96	64549-5003	Functional Materials and Novel Methods for the Fabrication of Microfluidic Devices	National	US 10/589,222 plus Foreign Counterparts filed in AU, CA, CN, EP, JP, SG	11/Aug/06	Pending
04-0067	421/96	64549-5003/01	Methods and Materials for Fabricating Microfluidic Devices	National	US 60/799,317 plus foreign counterparts filed in EP, CN	10/May/05	Pending
04-0104	421/90	64549-5002	Methods for Fabricating Isolated Micro- and Nanostructures Using Soft or Imprint Lithography	National	US 10/583,570 plus Foreign Counterparts filed in AU, BR, CA, CN, EP, IL, IN, JP, KR, MX, SG, ZA	19/Jun/06	Pending
04-0104	421/90	64549-5020	Nanoparticle Fabrication Methods, Systems and Materials	National	US 11/921,614 plus Foreign Counterparts filed in JP ,EP ,BR ,CN ,CA ,AU ,IN ,MX	19/Jun/06	Pending
04-0104	421/90	64549-5021	Materials and Methods for Fabricating Isolated Micro- and Nano- Structures Having Chemical Functionality	PCT	PCT/US06/034997	7/Sept/06	Expired
04-0104	421/90	64549-5023	Taggants and Methods and Systems for Fabricating Same	National	US 12/162,264	29/Jan/07	Pending
04-0104	421/90	64549-5022	Isolated and Fixed Micro and Nano Structures and Methods	US	US 11/594,023 plus foreign counterpart	7/Nov/06	Pending

			thereof		filed in EP		
04-0104	421/90	64549-5033	Micro and Nano-Carriers For Biological	US	12/374,182	27/Jul/07	Pending
05-0008	421/136	64549-5005	Low Surface Energy Polymeric Material for Use in Liquid Crystal Displays	National	US 11/883,304 plus foreign counterparts in JP, KR, CN, EP, SG,	3/Feb/06	Pending
07-0006	421/90/5	064549-5026	Micro and Nano-particles for Photovoltaics and Methods of Making the Same	National	US case filed 9/Nov/2008 plus foreign counterparts in EP, JP, KR, and CN	09/May/06	Pending
07-0014	421/189/P ROV	064549-5009PR	New Materials Based on PFPE With Hydrophilic Components	US	US 60/836,633	09/Aug/06	Expired
07-0028	421/194 PCT	064549-5010	Nanoparticle Compositions for Controlled Delivery of Nucleic Acids	US	12/444,662	09/Oct/06	Pending
07-0044	421/187/2 PROV	064549- 5002P15	Nano-Molding of Large Area, 2-D Array Photovoltaic Cells	US	US 60/857,669	07/Nov/06	Expired
07-0074	421/90/10 PCT	064549- 5028W0	Discrete Size and Shape Specific Pharmaceutical Organic Nanoparticles	PCT	PCT/US2008/055109	27/Feb/07	Pending
07-0079	421/208 PCT	064549-5027WO	Discrete Size and Shape Specific Organic Nanoparticles Designed to Illicit an Immune Response	PCT	PCT/US2008/058022	23/Mar/07	Pending
07-0047	421/197 PCT	64549-5012/WO	Polymer Particle Composite Having High Fidelity Order, Size, and Shape Particles	PCT	PCT/US2007/023805	15/Nov/06	Pending
08-0064	35052/340 465	64549-5038PR	Delivery Apparatus and Associated Method	PCT	PCT/US2009/36068	25/Feb/08	Pending

		64549-5041PR	Compositions and Methods for Intracellular Delivery and Release of Cargo	PROV	61/047,980	25/Apr/08	Expired
08-0090	35052/339 994	64549-5042PR	Degradable Compounds and Methods of Use Thereof, Particularly with Particle Replication in Non-Wetting	PCT	PCT/US2009/041652	25/Apr/08	Pending

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

			Templates				
		64549-5043PR	High Fidelity Through Hole Film, and Associated Method	PROV	US 61/075,103	24/Jun/08	Pending
09-0078		64549- 5046PR	Interventional Drug Delivery System and — Associated Methods	PROV	US61/155,800	26/Feb/09	Pending

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

EXHIBIT B

MILESTONES

Capitalized terms set out in this Exhibit B shall be defined as provided in the LICENSE AGREEMENT.

Milestone Q:

Q) LICENSEE shall submit, by January 30 of each year subsequent to the Effective Date of this First Amendment, a business plan outlining its development and commercialization plans for any product covered in whole or in part by any rights in UNIVERSITY TECHNOLOGY or PATENT RIGHTS that are being developed and commercialized by LICENSEE, LICENSEE's AFFILIATES or any sublicensee of either of the foregoing.

Milestones R-U:

R) Initiation of a Phase I clinical trial by LICENSEE, LICENSEE's AFFILIATE or sublicensee of either of the foregoing of any product covered in whole or in part by any rights in UNIVERSITY TECHNOLOGY or PATENT RIGHTS by January 1, 2013.

S) Initiation of a Phase III clinical trial, subject to FDA agreement, by LICENSEE, LICENSEE's AFFILIATE or sublicensee of either of the foregoing of any product covered in whole or in part by any rights in UNIVERSITY TECHNOLOGY or PATENT RIGHTS by January 1, 2016.

T) Commercial sale by LICENSEE, LICENSEE's AFFILIATE or sublicensee of either of the foregoing of any product covered in whole or in part by any rights in UNIVERSITY TECHNOLOGY or PATENT RIGHTS, by January 1, 2016.

U) Commercial sale by LICENSEE, LICENSEE's AFFILIATE or sublicensee of either of the foregoing of any product covered in whole or in part by any rights in UNIVERSITY TECHNOLOGY or PATENT RIGHTS which has not previously been commercialized by January 1, 2018.

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

MANUFACTURING DEVELOPMENT AND SCALE-UP AGREEMENT

This Manufacturing Development and Scale-up Agreement (the "Agreement") is made as of March 19, 2012 (the "Effective Date"), between **Liquidia Technologies, Inc.**, a Delaware corporation ("Liquidia") having its principal place of business at Suite 100, 419 Davis Drive, Morrisville, NC 27560 and **Chasm Technologies, Inc.**, a Massachusetts corporation ("Chasm") with principal offices located at 85 Wagon Rd, Westwood, MA 02090.

Whereas; Chasm and Liquidia entered into a Consulting Services and License Agreement on 31 August 2006 (the "Chasm Consulting Agreement"), which was mutually terminated by the parties as of the Effective Date; and

Whereas; the parties desire to now enter a manufacturing development and scale-up agreement whereby Chasm wishes to assist Liquidia in scale-up and optimization of Liquidia's PRINT manufacturing capabilities.

In consideration of the mutual promises and agreements contained herein and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

1. Definitions. Capitalized terms used in this Agreement shall have the meanings specified in this Agreement. In addition, the following terms shall have the meanings below:

"Chasm Pre-Existing Intellectual Property" means Pre-Existing Intellectual Property owned or licensed by Chasm or its subcontractors.

"Deliverable" means any deliverable developed or prepared for Liquidia pursuant to this Agreement.

"Net Sales" means the worldwide gross receipts from sales to third parties of all Products, less all customary deductions actually paid using generally accepted accounting principles for i) trade, cash and quantity credits, discounts, refunds or rebates; ii) allowances or credits to customers actually granted on account of rejection, damage, or return of product; iii) sales commissions; iv) sales and excise taxes (including value added tax) and any other governmental charges imposed upon the production, importation, use or sale of product; and v) transportation charges, including insurance, for transporting product to the extent specifically invoiced to the customer.

"Pre-Existing Intellectual Property" means the data, information, tools, ideas, techniques, methodologies, specifications, documentation, notes and materials, including any patents, patent rights, copyrights, mask works, trade secrets and other intellectual property rights embodied therein, owned or controlled by a party prior to or independent of Chasm's performance under this Agreement, and whether or not used to produce, or embodied in, the Deliverables.

"Products" shall mean any particle or film fabricated in-whole or in-part under this Agreement.

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

2. Activities To Be Performed.

2.1 Activities. Liquidia agrees to retain Chasm, and Chasm agrees to perform the services reasonably requested by Liquidia pursuant to the terms of this Agreement (the "Activities"). The Activities are to be performed by Chasm personnel and, subject to the prior written consent of Liquidia, not to be unreasonably withheld, Chasm subcontractors, including, utilization of the resources and any Chasm Pre-Existing Intellectual Property necessary or useful to complete the Activities.

2.2 Use of Subcontractors. Prior to entering into any subcontractor agreement, Chasm shall provide a copy, with the commercial terms redacted, of any such proposed subcontract to Liquidia and receive Liquidia's prior written approval, which shall not be unreasonably withheld. Any such agreement with subcontractors shall prohibit disclosure of Confidential Information and assign to Chasm all rights to any Liquidia Owned Intellectual Property developed by the subcontractor pursuant to this Agreement which Chasm shall thereafter assign to Liquidia as set forth in Sections 7.2, and require the subcontractor to license to Chasm all Subcontractor Pre-Existing Intellectual Property that is used in the Project or Deliverables which Chasm shall thereafter license to Liquidia in accordance with Sections 7.3a and 7.3b, as applicable.

2.3 Changes. This Agreement and any appendix or attachment may be changed only by an agreement in writing signed by an authorized representative of both parties.

2.4 Cooperation. Each party shall generally provide such cooperation as the other party reasonably requests regarding the Activities in accordance with customary business practices. Unless otherwise expressly agreed and as otherwise set forth in this Agreement, such cooperation shall be provided without cost to the other party.

2.5 Ownership of Equipment and Supporting Documentation. Liquidia shall own the entire right, title and interest to all equipment, machinery and supporting documents, plans and reports for the equipment and machinery created as a result of the performance of the Activities unless otherwise agreed to in writing. All material and information protectable by copyright are "works made for hire," as that term is defined in the 1976 Copyright Act as amended (title 17 of the United States Code).

3. Compensation, Royalties and Expenses. Liquidia's payment obligations to Chasm are limited to those expressly defined in the following Sections 3.1, 3.2 and 3.3.

3.1 Compensation. Liquidia agrees to pay Chasm for the Activities in accordance with the compensation schedule for the Activities in Appendix A.

3.2 Expenses. Liquidia agrees to reimburse Chasm for reasonable and necessary travel and out-of-pocket expenses incurred in connection with the performance of the

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Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

Activities. Reimbursement by Liquidia shall be made within thirty days (30) after submission by Chasm to Liquidia of expense reports, with copies of supporting documentation.

3.3 Royalties; Advanced Minimum Royalties.

3.3 a. Advance Minimum Royalties. Upon execution of this Agreement Liquidia shall pay Chasm equal monthly installments of $[***] beginning on the first full month after the Effective Date and continuing for the next consecutive twenty (20) months for a total of $[***] as partial consideration for entering into this Agreement with the significant obligations required of Chasm ("Partial Prepayment of Future Royalties"). In addition, upon the first dosing of the first patient in the first Phase III clinical trial using a Product ("Phase III Initiation"), $400,000 shall become due to Chasm by Liquidia and payable by Liquidia to Chasm in equal monthly installments per month for the immediately following twelve (12) consecutive months. Together the above Partial Prepayment of Future Royalties of $[***] and Phase III Initiation payment of $400,000 shall be defined as the "Advanced Minimum Royalties", which shall apply as partial prepayment of future royalties and be credited against the Cumulative Royalties payable by Liquidia to Chasm hereunder.

3.3.b Future Royalties.

3.3.b.1. Liquidia shall pay to Chasm (i) a royalty of [***] percent ([***]%) of the Net Sales of all Products that incorporate, use, or result from using Liquidia Owned Intellectual Property (the "Sales Royalty") and (ii) a royalty of [***] percent ([***]%) of all license fees and royalties received by Liquidia, from a party other than Chasm or its subcontractors, for each sublicense of Liquidia Owned Intellectual Property (the "License Fee").

3.3.b.2 Notwithstanding the above, the License Fees in this Section 3.3.b shall not be triggered or become due for any sublicense in the context of research collaboration activities or licenses not related to commercialization activities.

3.3.c. During the term of this Agreement, the total maximum amount of monies to be paid by Liquidia to Chasm under this Agreement (which amount includes the Advanced Minimum Royalties, Sales Royalty, and License Fee) shall be $[***] ("Cumulative Royalties"). Upon Liquidia paying to Chasm the Cumulative Royalties, no further monies shall be due under this Agreement and the license grants in this Agreement shall become fully paid worldwide licenses according to their terms. For clarity, the Advanced Minimum Royalties, Sales Royalty, and License Fee aggregate toward the Cumulative Royalties, however the Cumulative Royalties do not include consulting fees or other service related compensation paid by Liquidia to Chasm under this Agreement.

3.4 Payment Terms. Liquidia shall pay each invoice set forth in the compensation schedule in Appendix A, in full, within thirty (30) days of Liquidia's receipt of an accurate and reasonable invoice. Any invoice payable by Liquidia which remains unpaid after the due date shall accrue interest at a rate of 1.0% per month. Liquidia shall be liable for all collection expenses incurred by Chasm for delinquent amounts, including without limitation reasonable attorneys' fees.

3.5 Reports and Royalty Payments. Commencing upon the commercialization of the first Product triggering royalties under this Agreement, within thirty (30) days following the last day of each calendar quarter during the term, Liquidia shall deliver to Chasm a written report showing, in reasonable detail, the royalties owed by such party to the other party in such quarter accompanied by any royalty payments due and owing.

3.6 Audit Rights. Each party shall have the right to audit the relevant records of the other party upon reasonable notice and not more than once annually to verify compliance with the terms of this Agreement. Fees and expenses incurred in connection with such audits will be borne by the auditing party, unless such audit reveals that an error of five percent (5%) or more and at least $2,500, in any payment was made during any given quarter, in which case the fees and expenses incurred in connection with the audit during which such error was discovered will be borne by audited party. Any such audit shall occur during regular business hours, and shall not unreasonably interfere with regular business activities.

3.7 Records. During the term of the Agreement and for three (3) years after royalties are due and payable, each party shall maintain true and complete books and records related to all royalty sales and applications.

4. Work Rules. Chasm and Chasm's Representatives (as defined below) agree to comply with Liquidia's applicable work rules and regulations of which Chasm is informed in writing, including any security requirements while on Liquidia premises. Chasm and Chasm's Representatives further agree to comply with all applicable governmental regulations and abide by Liquidia's security requirements while on Liquidia premises.

Each party agrees that when its clients and Representatives are present on the premises of another party to this Agreement, they each shall comply with such rules and regulations as are notified to them for the conduct of individuals on those premises, and are subject to removal from the premises in the event they fail to comply with such rules.

Each party acknowledges and agrees that some of its employees, consultants, subcontractors or independent contractors will be performing work (the "Use Party") on each other party's (the "Location Owner") properties, including laboratories. Each party further acknowledges that the other parties perform work for other clients, including the U.S. Government, where security and confidentiality is an issue. Therefore, the Use Party agrees that it will, if directed by a Location Owner on whose property it is performing work, instruct the Use Party's staff, agents, officers, directors, employees, consultants, subcontractors or independent contractors (its "Representatives") who work on the Location Owner's property, to execute any additional confidentiality agreements or appropriate documents as are deemed reasonably necessary by the Location Owner.

5. Representations, Warranties and Covenants.

5.1 Compliance with Other Agreements. Chasm and Liquidia each represent to the other that to each Party's knowledge the execution of this Agreement, the performance of

the obligations hereunder, and the licenses granted herein do not and will not conflict with, result in the breach or termination of any provisions, or constitute a default under, any agreement to which Chasm or Liquidia, as the case may be, is or may be bound.

5.2 Necessary Licenses. Chasm and Liquidia each represent and warrant to the other that to each Party's knowledge each has all necessary licenses from subcontractors and licensors to perform the Activities, and to complete the Deliverables in accordance with this Agreement.

5.3 Limited Warranty. Chasm represents and warrants that, to its knowledge and belief, (i) Chasm did not use or incorporate any proprietary subcontractor, or other third party, intellectual property into the deliverables generated and/or delivered to Liquidia under the Chasm Consulting Agreement; (ii) Liquidia has the freedom to practice the deliverables generated and/or delivered to Liquidia under the Chasm Consulting Agreement with respect to Chasm pre-existing intellectual property and any intellectual property Chasm developed under the Chasm Consulting Agreement; and (iii) Chasm has the skills and experience necessary to perform the Activities required under this Agreement and that it will use best efforts to the extent commercially reasonable, to perform said Activities in a professional, competent and timely manner.

5.4 Additional Representations, Warranties and Covenants.

5.4.1 All respective former and current employees and subcontractors of Chasm and Liquidia that have, have had, or will have access to confidential information have executed written agreements prohibiting disclosure of confidential information and assigning to each respective party, as applicable, all rights to any and all intellectual property, including inventions made during or derived from their relationship, to each respective party, as applicable.

5.4.2 Each Party has taken and will continue to take commercially reasonable precautions to protect the secrecy of its confidential information and trade secrets.

5.4.3 Neither Party has been alleged to infringe or misappropriate any intellectual property right of any other person or entity, there is no claim or action served or threatened, alleging any such infringement or misappropriation and neither party is aware of any such claim or action.

5.4.4 To the knowledge of the Parties, the operation of their respective businesses as presently conducted does not infringe or misappropriate any third-party intellectual property right.

5.4.5 Chasm represents that, to the best of its knowledge, neither it nor any of its personnel has been debarred, and to the best of its knowledge, is not under consideration to be debarred, by the U.S. Food and Drug Administration from working in or providing consulting services to any pharmaceutical or biotechnology company under the Generic Drug Enforcement Act of 1992.

5.5 No Government Funding. Chasm covenants that none of the Activities performed by Chasm or its subcontractors under this Agreement shall be funded in whole or in part by any government entity.

5.6 Additional Covenants.

5.6.1 Prior to incorporating into its Deliverables any third party intellectual property of which Chasm is aware and that Chasm reasonably believes the manufacture, use, sale, offer to sell, importation or other exploitation of which would require Liquidia to obtain a further license, Chasm shall identify such third party intellectual property to Liquidia. Liquidia shall determine at its sole discretion and notify Chasm, within a commercially reasonably time, whether or not to incorporate such third party intellectual property into the Deliverable. If Liquidia notifies Chasm to

incorporate such third party intellectual property, Liquidia shall be responsible for procuring the necessary license that would permit such third party intellectual property to be used in the Project and the Deliverable.

5.6.2 At times reasonably requested by Liquidia, Chasm shall produce to Liquidia a comprehensive list of: a) agreements related to intellectual property of which Chasm is aware and reasonably believes affects or may affect the Activities and/or the use of the Deliverables; and b) all agreements between Chasm employees and their former employers or clients of which Chasm is aware, after a reasonable investigation, and reasonably believes is related to intellectual property that affects or may affect the Activities and/or the use of the Deliverables. All such information and agreements transferred under this Agreement shall be treated as Chasm Confidential Information by Liquidia.

5.6.3 All future employees of Chasm, Chasm subcontractors, and Liquidia that will have access to Confidential Information will execute written agreements prohibiting disclosure of confidential information and assigning to each respective party, as applicable, all rights to any and all intellectual property, including inventions made during or derived from their relationship, to each respective party, as applicable.

5.7 Disclaimer. EXCEPT AS OTHERWISE STATED IN SECTIONS 5.1, 5.2, 5.3, 5.4, 5.5 AND 5.6 NEITHER PARTY MAKES ANY REPRESENTATIONS OR WARRANTIES, OF ANY KIND OR NATURE, WHETHER EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, TITLE OR NON-INFRINGEMENT.

6. Confidentiality.

6.1 Each party acknowledges that in the course of this Agreement it will receive information about, and access to, trade secrets and other confidential and proprietary information which is vital to the competitive position and success of the other party to this Agreement. The term "Confidential Information" as used throughout this Agreement shall mean with respect to a party, all proprietary information and technology of such party that is disclosed to the other party under this Agreement, whether disclosed in oral, written, graphic, or electronic form. Notwithstanding the foregoing, all information and technology generated under this

Agreement, whether generated by one or both parties shall be deemed the Confidential Information of the party that owns such information and technology under the terms of this Agreement.

Except as expressly provided herein, the parties agree that, under this Agreement and for ten (10) years thereafter, each party will keep completely confidential and will not publish or otherwise disclose or use any Confidential Information of the other party except in connection with the activities contemplated by this Agreement without such other party's prior written consent, except for that portion of such information or materials that the receiving party can demonstrate by competent tangible proof:

(a) was already known or available to the receiving party, other than under an obligation of confidentiality or non-use to the other party, at the time of disclosure to the receiving party;

(b) was part of the public domain, at the time of its disclosure to the receiving party;

(c) became part of the public domain, after its disclosure to the receiving party through no fault of or breach of its obligations under this Agreement by the receiving party;

(d) was lawfully disclosed to the receiving party, other than under an obligation of confidentiality or non-use, by a third party rightfully in possession of the Confidential Information who had no obligation to the disclosing party not to disclose such information to others;

(e) was independently discovered or developed by or for the receiving party without access to, use of, reference to, or reliance upon Confidential Information belonging to the disclosing party; or

(f) is required to be disclosed pursuant to any applicable law, regulation, or legal order, provided that the receiving party has notified the disclosing party upon learning of the possibility that disclosure could be required pursuant to any such law, regulation, or legal order and has given the disclosing party a reasonable opportunity to contest or limit the scope of such required disclosure and has cooperated with the disclosing party toward this end.

Notwithstanding the above, specific aspects or details of Confidential Information will not be deemed to be within the public domain or in the prior possession of the receiving party merely because the aspects or details of the Confidential Information are embraced by general disclosures in the public domain. In addition, any combination of Confidential Information will not be considered in the public domain or in the prior possession of the receiving party merely because individual elements thereof are in the public domain or in the prior possession of the receiving party unless the combination is in the public domain or in the prior possession of the receiving party.

Each of the parties agrees that it shall provide Confidential Information received from the other party only to the receiving party's respective directors, officers, employees, agents, and financial and legal advisors who have a need to know such Confidential Information to assist the receiving party with the activities contemplated by this Agreement and are under written agreements of confidentiality at least as restrictive as those set forth in this Agreement.

6.2 Return of Confidential Information. Upon expiration or early termination of this Agreement, each party shall return or destroy all Confidential Information received by it

from the other party. Notwithstanding the foregoing, each party shall be allowed to keep one (1) archival copy of any Confidential Information of the other party for record-keeping purposes only.

6.3 The Activities anticipated in this Agreement shall be performed by Representatives who may be retained by each party. Any individual who assists in the performance of the Activities anticipated herein shall, prior to providing any such assistance, have executed an agreement with its employer or contracting party that is a signatory to this Agreement with terms no less restrictive than the terms of this Agreement.

7. Intellectual Property Rights and Licenses

7.1 Each party shall own its Pre-Existing Intellectual Property. Liquidia and/or Chasm or Chasm subcontractors from time to time may invent and/or create and/or develop and/or license or otherwise acquire rights and/or interests in intellectual property in performing the Activities, including rights and interests in any inventions (whether patentable or not), trade secrets, know how, and works of authorship fixed in any tangible medium of expression, known or later developed, from which they can be perceived, reproduced, or otherwise communicated, whether directly or with the aid of a machine or device (whether registerable or not) in connection with performing the Activities under this Agreement ("New Project IP"); provided that New Project IP shall not include any Pre-Existing Intellectual Property.

7.2 With respect to New Project IP, Liquidia and Chasm agree that all right, title and interest in New Project IP shall be owned by Liquidia ("Liquidia Owned Intellectual Property"). Chasm agrees to assign and hereby does assign to Liquidia its entire right, title and interest to Liquidia Owned Intellectual Property including all of Chasms rights to bring suit and recover damages for past and future infringement.

7.3 a. Chasm grants Liquidia a perpetual, exclusive, sublicensable worldwide license, in accordance with the terms of this Agreement, to make, have made, use, offer to sell, sell, import, reproduce, prepare derivative works, and distribute Chasm Pre-Existing Intellectual Property solely as incorporated into the Activities and/or Deliverables for use or applications related to molded particles and harvested molded particles (the "Liquidia Permitted Exclusive Uses").

b. Chasm grants Liquidia a perpetual, non-exclusive, sublicensable worldwide license, in accordance with the terms of this Agreement, to make, have made, use, offer to sell, sell, import, reproduce, prepare derivative works, and distribute Chasm Pre-Existing Intellectual Property solely as incorporated into the Activities and/or Deliverables for any use or application with Liquidia's PRINT platform technology other than molded particles and harvested molded particles (the "Liquidia Permitted Non-exclusive Uses").

7.4 All sublicenses shall include terms to protect the confidentiality of Chasm Pre-Existing Intellectual Property with terms at least as restrictive as this Agreement.

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

7.5 Chasm may cause the exclusive license granted in Section 7.3 to Liquidia Permitted Exclusive Uses to become non-exclusive when (a) after the fourth anniversary of the Phase III Initiation if the cumulative of the Advanced Minimum Royalties, Sales Royalty and License Fee paid by Liquidia to Chasm have not exceeded $[***] and Liquidia has failed to bring such cumulative total payment to Chasm to $[***] after thirty (30) days written notice from Chasm and (b) after the eighth anniversary of the Phase III Initiation if Liquidia has not paid Chasm the Cumulative Royalties and Liquidia has failed to satisfy the Cumulative Royalties after thirty (30) days written notice from Chasm.

8. Term and Termination.

8.1 Term. This Agreement is in effect from the Effective Date until the Activities are completed and accepted by Liquidia unless terminated earlier.

8.2 Termination.

8.2.1 Material Breach. Either party may, upon giving thirty (30) days written notice, terminate this Agreement for the other party's breach of any of its material obligations under this Agreement, provided that the breaching party shall not have cured such breach within the thirty (30) day notice period.

8.2.2 Either party may terminate this Agreement for its convenience upon giving sixty (60) days prior written notice to the other party.

8.2.3 Mutual Termination. The parties may agree to terminate this Agreement in a writing signed by both parties at any time prior to completion of the Activities.

8.3 Effect of Termination.

8.3.1 Upon termination of this Agreement, each party shall promptly return to the other party all Confidential Information of the other party and all equipment and products owned or controlled by the other party in its possession or under its control.

8.3.2 In the event of a material breach by Liquidia, all licenses granted to Liquidia shall terminate, provided Liquidia does not cure such breach within forty five (45) days following receipt of a detailed written notice of the breach by Chasm.

8.3.3 In the event of a material breach by Chasm, Liquidia shall pay Chasm for all reasonable out of pocket costs and expenses for Activities accepted through the termination date subject to a set-off by Liquidia of costs associated with Chasm's material breach and all licenses granted to Liquidia hereunder shall survive.

8.3.4 Should Liquidia terminate this Agreement under Section 8.2.2 for convenience, all Liquidia Owned Intellectual Property created as of the date of termination shall remain the property of Liquidia, all license rights and obligations created under this Agreement

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

as of the date of termination shall survive the termination and Liquidia shall pay Chasm (a) reasonable costs and expenses incurred by Chasm under this Agreement through the termination date, and (b) the Advanced Minimum Royalties under Section 3.3 a.

8.3.5 Should the parties terminate this Agreement under Section 8.2.3 for mutual convenience, all Liquidia Owned Intellectual Property created as of the date of termination shall remain the property of Liquidia, all license rights and obligations created under this Agreement as of the date of termination shall survive the termination and Liquidia shall pay Chasm reasonable costs and expenses incurred by Chasm under this Agreement through the termination date.

8.3.6 For the avoidance of doubt, the Parties acknowledge that Liquidia's ownership rights with respect to Liquidia Owned Intellectual Property is and shall be irrevocable and unaffected by any expiration or termination of this Agreement for any reason.

8.4 Survival. Sections 2.5, 3.3-3.7, 5, 6, 7, 8.3, 8.4, 9-15, and 18-19 shall survive the expiration or termination of this Agreement.

9. Specific Performance. Chasm and Liquidia each recognizes that irreparable injury may be caused to the other by its violation or material breach of Sections 6-7 of this Agreement, and Chasm and Liquidia each agrees that, in the event of any such violation, in addition to such other rights and remedies as may exist under this Agreement, the other may apply to any court of law or equity having jurisdiction to enforce the specific performance of the provisions hereof, and may apply for injunctive relief against any act which would violate any such provisions.

10. Limitation on Liability. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, NEITHER PARTY SHALL BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, PUNITIVE OR SPECIAL DAMAGES (INCLUDING LOSS OF PROFITS, DATA, BUSINESS OR GOODWILL), REGARDLESS OF WHETHER SUCH LIABILITY IS BASED ON BREACH OF CONTRACT, TORT, STRICT LIABILITY, BREACH OF WARRANTIES, FAILURE OF ESSENTIAL PURPOSE OR OTHERWISE, AND EVEN IF ADVISED OF THE LIKELIHOOD OF SUCH DAMAGES. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, THE LIABILITY OF CHASM FOR DIRECT DAMAGES, REGARDLESS OF WHETHER SUCH LIABILITY IS BASED ON BREACH OF CONTRACT, TORT, STRICT LIABILITY, BREACH OF WARRANTIES, FAILURE OF ESSENTIAL PURPOSE OR OTHERWISE, UNDER THIS AGREEMENT OR WITH RESPECT TO THE ACTIVITIES SHALL IN NO EVENT EXCEED THE AGGREGATE AMOUNT OF FEES WHICH CHASM RECEIVES IN CONNECTION WITH THIS AGREEMENT. THESE LIMITATIONS ARE INDEPENDENT OF ALL OTHER PROVISIONS OF THIS AGREEMENT AND SHALL APPLY NOTWITHSTANDING THE FAILURE OF ANY REMEDY PROVIDED HEREIN.

11. Independent Contractor. Chasm and Liquidia agree that Chasm shall provide the Activities to Liquidia solely as an independent contractor. This Agreement is not intended to and should not be deemed to create an employment or principal-agent relationship or joint venture between Chasm, or any of its employees or contractors, and Liquidia, and neither party shall

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have the right, power or authority to obligate, commit or incur any liability on behalf of the other party or to otherwise act in any way as an agent or representative of the other party or bind the other in any manner whatsoever.

12. Bankruptcy. The licenses granted in this Agreement ("Licenses") are licenses for intellectual property, as such term is defined in Section 101 of Title 11 of the United States Code (the "Bankruptcy Code"). The parties acknowledge and agree that, upon the filing of a petition for relief under the Bankruptcy Code by or against the Grantor (a "Filing"), whether such Filing is voluntary or involuntary, it is intended that this Agreement and the Licenses shall be subject to the provisions of Section 365(n) of the Bankruptcy Code, and, as such, the parties shall retain and may fully exercise all of its rights and elections provided thereunder. In the event of a Filing, the parties shall, promptly upon written request by the other party, comply with the provisions of Section 365(n) of the Bankruptcy Code, including subsections (3) and (4) thereof.

13. Severability. In the event any provision of this Agreement, in whole or in part, is invalid, unenforceable or in conflict with the applicable laws or regulations of any jurisdiction, such provision will be replaced, to the extent possible, with a provision which accomplishes the original business purposes of the provision in a valid and enforceable manner, and the remainder of this Agreement will remain unaffected and in force provided, however, that if without such invalid or unenforceable provision the fundamental mutual objectives of the parties cannot be achieved, either party may terminate this Agreement without penalty by written notice to the other.

14. Governing Law; Headings; Counterparts. This Agreement shall be governed by and interpreted according to the laws of the State of Delaware without regard for any choice or conflict of laws rule or provision that would result in the application of the substantive law of any other jurisdiction. The headings of the several sections are for convenience only and are not intended to be part of or

to affect the meaning or interpretation of this Agreement. This Agreement may be executed in counterparts (all of which counterparts shall constitute one and the same agreement) and may be executed by facsimile transmission.

15. Assignment; Successors & Assigns. This Agreement and the rights and obligations hereunder may not be assigned in whole or in part by any party and any such assignment shall be null and void; provided, however, that an assignment may be made by any party to the surviving entity of a merger or acquisition of substantially all of the assets of such party. This Agreement shall bind and inure to the benefit of all parties to this Agreement and their respective successors and permitted assigns.

16. Force Majeure. Neither party will be liable for any delays or failures in performance due to circumstances beyond its reasonable control. In the event that either party is prevented from performing due to causes beyond its control, such party shall notify the other party, explaining the cause for same and the dates or times for performance shall be extended for the period of the delay and a reasonable additional time.

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

17. Entire Agreement; Waiver. This Agreement together with the appendices and attachments thereto, sets forth the entire agreement between the parties concerning the transactions and arrangements contemplated hereby, and supersede all prior oral or written arrangements or agreements. This Agreement may be amended only by an instrument in writing signed by both parties and may be waived only by an instrument in writing signed by the party against whom enforcement of the waiver is sought. The waiver by either party of any breach of this Agreement on one occasion shall not operate or be construed as a waiver of any other breach on another occasion.

18. Remedies. Except as expressly provided herein, the remedies provided in this Agreement are not and shall not be deemed to be exclusive and shall be in addition to any other remedies that a Party may have at law or in equity.

19. Publicity. Other than with respect to any internal reports or reporting to federal, state, and local authorities for purposes of compliance with legal reporting requirements (such as, for example, any appropriate reporting to the U.S. Securities & Exchange Commission), neither Party shall, without the express written consent of the other Party, use the name or mark of the other Party in transacting business or issue any public reports, statements, or releases pertaining to the transaction contemplated by this Agreement.

IN WITNESS WHEREOF, Liquidia and Chasm have duly executed this Agreement as of the Effective Date.

Chasm Technologies, Inc.		**Liquidia Technologies, Inc.**	
By:	*/s/ Robert F. Praino*	By:	*/s/ Bruce Boucher*
Name:	Robert F. Praino	Name:	Bruce Boucher
Title:	Co-Founder	Title:	President & CFO

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

APPENDIX A

COMPENSATION SCHEDULE

Components of cost:

- Consulting Activities rate will be $[***] per hour for the services of [***] and $[***] per hour for all others. It is expected that the workload related to this charge will be as needed as specified by Liquidia.
- Engineering rates (other subcontractors as required) will be based on the specific resource engaged (e.g. mechanical design, electrical design, third party analytical services, machine shops, etc.).
- Equipment enhancements or fabrication will be funded by Liquidia.
- Travel expenses for Chasm and/or sub-contractors will be pre-approved and funded by Liquidia.

Exhibit 10.21

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

CONFIDENTIAL

1st AMENDMENT TO MANUFACTURING DEVELOPMENT AND SCALE-UP AGREEMENT

1st AMENDMENT TO MANUFACTURING DEVELOPMENT AND SCALE-UP AGREEMENT, ("1st Amendment") effective as of May 25, 2017 ("Effective Date"), by and between Chasm Technologies, Inc., a Massachusetts corporation ("Chasm") having a place of business at 85 Wagon Rd, Westwood, MA 02090; B&D Holdings, Inc., a Massachusetts corporation ("B&D") having a place of business at 85 Wagon Rd, Westwood, MA 02090; and Liquidia Technologies, Inc, a Delaware corporation ("Liquidia"), having a place of business at Suite 100, 419 Davis Drive, Durham, NC 27713. For simplicity, Chasm and B&D may be collectively referred to herein as B&D.

WITNESSETH:

WHEREAS, Liquidia and Chasm Technologies, Inc., ("Chasm") have entered into a Manufacturing Development and Scale-up Agreement having an effective date of March 19, 2012 ("Agreement");

WHEREAS, Chasm assigned the Agreement, in part, to B&D on or after January 22, 2014, with written consent of Liquidia dated January 22, 2014, and May 13, 2014.

WHEREAS; Chasm, B&D and Liquidia now wish to amend the Agreement upon the terms and conditions set forth below.

NOW, THEREFORE, in consideration of the promises and mutual covenants contained in the Agreement and herein, the parties hereto agree as follows:

1. The monthly installment payment mechanism of the Phase III Initiation payment of four hundred thousand ($400,000) dollars is hereby deleted in its entirety and replaced with the following payment mechanism:

   Liquidia shall pay B&D (i) twenty thousand ($20,000) dollars upon execution of this 1st Amendment; (ii) eighty thousand ($80,000) dollars upon the first dosing of the first patient in the first Phase III clinical trial using a Product ("Phase III Initiation"); and (iii) three hundred thousand ($300,000) dollars no later than December 31, 2018.

2. Liquidia hereby agrees to accelerate [***] ($[***]) dollars of the remaining Cumulative Royalties to become due and payable upon the first approval of Liquidia's first new drug application ("NDA") ("Additional Advanced Minimum Royalty").

3. For clarity, cumulatively the Advanced Minimum Royalties, Additional Advanced Minimum Royalty, Sales Royalty and License Fee paid under the Agreement and this 1st Amendment shall not exceed the Cumulative Royalties of [***] ($[***]) dollars as defined in the Agreement. For further clarity, upon full payment of (i) the Advanced Minimum Royalties, which includes the previously paid-in-full Partial Prepayment of Future Royalties of [***] ($[***]) dollars and the

Confidential treatment has been requested with respect to portions of this agreement as indicated by "[***]" and such confidential portions have been deleted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

Phase III Initiation payment herein, and (ii) the Additional Advanced Minimum Royalty, the remaining Cumulative Royalties under the Agreement equals [***] ($[***]) dollars.

4. This 1st Amendment shall be governed by and interpreted according to the laws of the State of Delaware without regard for any choice or conflict of laws rule or provision.

5. In the event any provision of this 1st Amendment, in whole or in part, is determined to be invalid or unenforceable by a court of competent jurisdiction such provision shall be replaced, to the extent possible, with a provision which accomplishes the original business purpose and intent of the invalid or unenforceable provision. The remainder of this 1st Amendment will remain unaffected and in force.

IN WITNESS WHEREOF, the parties hereto have executed this 1st Amendment to Manufacturing Development and Scale-up Agreement by their duly authorized officers or representatives.

CHASM TECHNOLOGIES, INC.

BY: */s/ Robert F. Praino Jr*
Name: Robert F. Praino Jr
Title: Co-Founder, Sec/Treas

LIQUIDIA TECHNOLOGIES, INC.

BY: */s/ Shawn Glidden*
Name: Shawn Glidden
Title: VP Legal Affairs & Secretary

B&D HOLDINGS, INC.

BY: */s/ Robert F. Praino Jr*
Name: Robert F. Praino Jr
Title: Co-Founder, Sec/Treas

Liquidia Technologies, Inc.
Executive Severance and Change in Control Plan

Table of Contents

ARTICLE I
Statement of Purpose and Effective Date

1.01 Purpose. Liquidia Technologies, Inc., a Delaware corporation (the "Company"), hereby establishes the Liquidia Technologies Executive Severance and Change in Control Plan (the "Plan"). The Plan is intended to encourage and motivate key employees to devote their full attention to the performance of their assigned duties without the distraction or concerns regarding their involuntary termination of employment. The Company believes that it is in the best interests of the shareholders of the Company to provide financial assistance through severance payments and other benefits to eligible key employees who are involuntarily terminated. With respect to each Participant, the Plan supersedes all plans, agreements, or other arrangements for severance benefits or for enhanced severance payments whether or not before, on or after a change in control, except as specifically provided herein. To the extent the Plan provides deferred compensation it is an unfunded plan primarily for the purposes of providing deferred compensation for a select group of management or highly compensated employees.

1.02 Effective Date. The Compensation Committee of the Board of Directors of the Company approved the Plan on March 3, 2017 and the Plan shall become effective as of the date the Company's common stock is listed on a national securities exchange or an established securities market (such date, the "Effective Date").

ARTICLE II
Definitions

When used in this Plan, the terms specified below have the following meanings:

2.01 "Accrued Annual Incentive" means the amount of any annual incentive earned in a year ended before the Termination Date, but not yet paid to a Participant as of the Termination Date, other than amounts that he or she has elected to defer or that have been automatically deferred.

2.02 "Accrued Base Salary" means the amount of a Participant's Base Salary that is accrued but unpaid as of the Termination Date, other than amounts that he or she has elected to defer.

2.03 "Accrued Obligations" means, as of any date, the sum of a Participant's Accrued Base Salary, Accrued Annual Incentive, any accrued but unpaid vacation pay, unreimbursed expenses for which proper documentation is provided, and any other vested amounts and benefits that are to be paid or provided to the Participant by the Company under the Company's plans (other than this Plan and other than any Section 409A Deferred Compensation), but which have not yet been paid or provided (as applicable).

2.04 "Affiliate" means any person with whom the Company would be considered a single employer under Sections 414(b) and 414(c) of the Code and Treas. Reg. §1.409A-3(i)(5)(ii), except that in applying Sections 1563(a)(1), (2), and (3) of the Code for purposes of determining a controlled group of corporations under Section 414(b) of the Code; the language "at least 50 percent" shall be used instead of "at least 80 percent" in each place it appears in Sections 1563(a)(1), (2), and (3) of the Code, and in applying Treas. Reg. § 1.414(c)-(2) for purposes of determining a controlled group of trades or businesses under Section 414(c) of the Code, the language "at least 50 percent" shall be used instead of "at least 80 percent" in each place it appears in Treas. Reg. § 1.414(c)-(2). Notwithstanding the foregoing, where justified by legitimate business criteria as determined by the Committee in its sole discretion, "at least 20 percent" shall be substituted for "at least 50 percent" in the preceding sentence in determining whether a Participant has a Termination of Employment.

2.05 "Award Agreement" means a written agreement between the Company and the Participant setting forth the terms and conditions of a stock-based award granted to the Participant under any of the Company's stock incentive plans, now or hereafter existing.

2.06 "Base Salary" means an Employee's monthly rate of salary as of any date.

2.07 "Board" means the Board of Directors of the Company or, from and after a Change in Control that gives rise to a surviving corporation to the Company, the Board of Directors of such surviving corporation.

2.08 "Cause" means any one or more of the following, as determined by the Committee or its delegate in its sole discretion:

(a) any act or omission by a Participant which, if convicted by a court of law, would constitute a felony or a crime of moral turpitude;

(b) a Participant's dishonesty or material violation of standards of integrity in the course of fulfilling his or her employment duties to the Company or any Affiliate;

(c) insubordination or a material violation of a material written policy of the Company or any Affiliate, violation of which would be grounds for dismissal under applicable Company policy;

(d) willful, repeated failure on the part of the Participant to perform his or her employment duties (provided that such duties are ethical and proper under applicable law) in any material respect, after reasonable written notice of such failure and an opportunity to correct it under a circumstance where the conduct constituting "Cause" is reasonably open to a cure (for instance, where the conduct does not involve a violation of trust or otherwise adversely affect the relationship between the Employee and the Employer on a going-forward basis), and the period to correct shall be established by the Committee;

(e) any act or omission materially adverse to the interest of the Company or any Affiliate, or reasonably likely to result in material harm to the Company or any Affiliate;

(f) failure to comply in any material respect with any Company policy, code of conduct, ethics or insider trading policy; or

(g) failure to comply in any material respect with the Foreign Corrupt Practices Act, the Securities Act of 1933, the Securities Exchange Act of 1934, the Sarbanes-Oxley Act of 2002, the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, or any rules or regulations thereunder, or any similar, applicable statute, regulation or legal requirement.

2.09 "Change Date" means the first date on which a Change in Control occurs before the termination of the Plan.

2.10 "Change in Control" means the first of the following to occur: (i) a Change in Ownership of Liquidia Technologies, (ii) a Change in Effective Control of Liquidia Technologies, or (iii) a Change in the Ownership of Assets of Liquidia Technologies, as described herein and construed in accordance with Code section 409A.

(a) A "Change in Ownership of Liquidia Technologies" shall occur on the date that any one Person acquires, or Persons Acting as a Group acquire, ownership of the capital stock of Liquidia Technologies that, together with the stock held by such Person or Group, constitutes more than 50% of the total fair market value or total voting power of the capital stock of Liquidia Technologies. However, if any one Person is, or Persons Acting as a Group are, considered to own more than 50%, on a fully diluted basis, of the total fair market

value or total voting power of the capital stock of Liquidia Technologies, the acquisition of additional stock by the same Person or Persons Acting as a Group is not considered to cause a Change in Ownership of Liquidia Technologies or to cause a Change in Effective Control of Liquidia Technologies (as described below). An increase in the percentage of capital stock owned by any one Person, or Persons Acting as a Group, as a result of a transaction in which Liquidia Technologies acquires its stock in exchange for property will be treated as an acquisition of stock.

(b) A "Change in Effective Control of Liquidia Technologies" shall occur on the date either (A) a majority of members of Liquidia Technologies' Board is replaced during any 12-month period by directors whose appointment or election is not endorsed by a majority of the members of Liquidia Technologies' Board before the date of the appointment or election, or (B) any one Person, or Persons Acting as a Group, acquires (or has acquired during the 12-month period ending on the date of the most recent acquisition by such Person or Persons) ownership of stock of Liquidia Technologies possessing 50% or more of the total voting power of the stock of Liquidia Technologies.

(c) A "Change in the Ownership of Assets of Liquidia Technologies" shall occur on the date that any one Person acquires, or Persons Acting as a Group acquire (or has or have acquired during the 12-month period ending on the date of the most recent acquisition by such Person or Persons), assets from Liquidia Technologies that have a total gross fair market value equal to or more than 50% of the total gross fair market value of all of the assets of Liquidia Technologies immediately before such acquisition or acquisitions. For this purpose, gross fair market value means the value of the assets of Liquidia Technologies, or the value of the assets being disposed of, determined without regard to any liabilities associated with such assets.

The following rules of construction apply in interpreting the definition of Change in Control:

(i) A "Person" means any individual, entity or group within the meaning of Section 13(d)(3) or 14(d)(2) of the Securities Exchange Act of 1934, as amended, other than employee benefit plans sponsored or maintained by Liquidia Technologies and by entities controlled by Liquidia Technologies or an underwriter, initial purchaser or placement agent temporarily holding the capital stock of Liquidia Technologies pursuant to a registered public offering.

(ii) Persons will be considered to be Persons Acting as a Group (or Group) if they are owners of a corporation that enters into a merger, consolidation, purchase or acquisition of stock, or similar business transaction with the corporation. If a Person owns stock in both corporations that enter into a merger, consolidation, purchase or acquisition of stock, or similar transaction, such shareholder is considered to be acting as a Group with other shareholders only with respect to the ownership in that corporation before the transaction giving rise to the change and not with respect to the ownership interest in the other corporation. Persons will not be considered to be acting as a Group solely because they purchase assets of the same corporation at the same time or purchase or own stock of the same corporation at the same time, or as a result of the same public offering.

(iii) A Change in Control shall not include a transfer to a related person as described in Code section 409A or a public offering of capital stock of Liquidia Technologies.

(iv) For purposes of the definition of Change in Control, Section 318(a) of the Code applies to determine stock ownership. Stock underlying a vested option is considered owned by the individual who holds the vested option (and the stock underlying an unvested option is not considered owned by the individual who holds the unvested option). For purposes of the preceding sentence, however, if a vested option is

exercisable for stock that is not substantially vested (as defined by Treasury Regulation §1.83-3(b) and (j)), the stock underlying the option is not treated as owned by the individual who holds the option.

2.11 "Code" means the Internal Revenue Code of 1986, as amended. Reference to any provision of the Code or regulation thereunder, shall include any successor provision and any regulations and other applicable guidance or pronouncement of the Internal Revenue Service or the Department of the Treasury, and applicable case law relating to such Section of the Code.

2.12 "Committee" means the Compensation Committee of the Board. To the extent the Committee has delegated authority to another person or persons the term "Committee" shall refer to such other person or persons.

2.13 "Company" means Liquidia Technologies, Inc. and any successor thereto.

2.14 "Disability" means (i) the Employee is determined to be totally and permanently disabled under any group long-term disability plan in which the Employee participates that is maintained by the Company or the Employee's Employer and in effect at that time, to the extent not inconsistent with applicable law, or (ii) the inability of the Employee, due to any medically determinable physical or mental impairment, to perform the essential functions of his or her job, with or without a reasonable accommodation, for (x) 120 days during any one employment year irrespective of whether such days are consecutive, or (y) such longer period, if any, that is available to the Employee under applicable law or Policies relating to the continuation of employee status after the onset of disability. In the event of any dispute under this Section, the Employee shall submit to a physical examination by a licensed physician mutually satisfactory to the Company and the Employee, the cost of such examination to be paid by the Company, and the determination of such physician shall be determinative.

2.15 "Effective Date" is defined in Section 1.02.

2.16 "Employee" means an individual who is designated as an employee of an Employer on the records of such Employer.

2.17 "Employer" means the Company and an Affiliate any of whose Employees are Participants in the Plan. The term "Employer" includes any successor to the Company or an Employer.

2.18 "ERISA" means the Employee Retirement Income Security Act of 1974, as amended. Reference to any provision of ERISA shall also include any successor provision and regulations and others applicable guidance or pronouncement of a federal regulatory agency and applicable case law relating to such Section of ERISA.

2.19 "Exchange Act" means the Securities Exchange Act of 1934, as amended.

2.20 "Good Reason " means, prior to or absent the occurrence of a Change in Control, a greater than 20% reduction in any of the Participant's base salary, target short-term cash incentive opportunity or value of regular annual long-term target incentive opportunity, the latter as determined by a third-party compensation consulting or accounting firm chosen by the Company and using generally accepted methodologies which may include annualizing prior year long-term incentive grants over more than one year and ignoring prior special retention or sign-on grants, other than a broad-based compensation reduction imposed across-the-board on executives at the vice president or higher level within the Company, and means, after the Change Date, any one or more of the following actions or omissions occurring during the Post-Change Period without the Participant's consent:

(i) a material reduction in the Participant's base salary or short-term/annual target cash incentive opportunity;

(ii) requiring the Participant to be principally based at any office or location, without the Participant's consent, more than 50 miles from the Participant's then-current principal location and also farther from the Participant's residence than the Participant's then-current principal office or location;

(iii) any material diminution in the Participant's authority, duties or responsibilities, but excluding a mere change in reporting relationship or title; or

(iv) any material breach of this Plan by any Employer or the Committee;

provided that, in order for there to be a Termination of Employment by a Participant for Good Reason, the Participant must notify the Participant's Employer of the event constituting such Good Reason within 90 days of the occurrence of such event, by a Notice of Termination. The Employer must have failed to cure the event constituting Good Reason within 30 days following receipt of the Notice of Termination and the Participant must terminate employment within five days after the lapse of the cure period if no cure is effected. A delay in the delivery of such Notice of Termination or in the Termination of Employment after the lapse of the cure period shall waive the right of the Participant under this Plan to terminate employment for Good Reason. For the avoidance of doubt, no material diminution of authority, duties or responsibilities shall be deemed to occur solely because the Company becomes a subsidiary of another corporation if the Participant's authority, duties and responsibilities to the Company or his Employer remain materially undiminished.

2.21 "Healthcare Assistance Multiple" means:

(a) 6X for a Termination Date occurring before or absent a Change Date, and

(b) 9X for a Termination Date occurring during the Post-Change Period.

2.22 "Including" means including without limitation.

2.23 "Involuntary Termination" means the Termination of Employment of a Participant (a) initiated by the Employer other than for Cause or Disability, and (b) for a reason other than death. A Termination of Employment initiated by the Participant for Good Reason shall also be an Involuntary Termination. For the avoidance of doubt, a Participant shall not have an Involuntary Termination of Employment if he or she (i) voluntarily resigns; (ii) voluntarily Retires; or (iii) has a Termination of Employment because of death, for Cause, or Disability.

2.24 "Notice of Termination" means a written notice given in accordance with Section 10.03 that sets forth (i) the specific termination provision in this Plan relied on by the party giving such notice, (ii) in reasonable detail the circumstances claimed to provide a basis for such Termination of Employment, and (iii) if the Termination Date is other than the date of receipt of such Notice of Termination (and is not determined under Section 2.35(a), (b), or (c)), the Termination Date.

2.25 "Participant" means an Employee who is selected by the Committee to participate in the Plan.

2.26 "Plan" means this Liquidia Technologies Executive Severance and Change in Control Plan as set forth herein and as from time to time amended.

2.27 "Plans" means plans, programs, or Policies of the Company or the Employer that employs a Participant.

2.28 "Policies" means policies, practices or procedures of the Company or the Employer that employs a Participant.

2.29 "Post-Change Period" means the period beginning on the Change Date and ending on the second anniversary of the Change Date.

2.30 "Pro-rata Annual Incentive" means, in respect of an Employer's fiscal year during which the Termination Date occurs, an amount equal to the product of (a) (i) in the case of a Termination Date before the Change Date, the actual annual incentive the Participant would have been paid if he or she remained employed on the payment date applicable to then-current employees based on actual performance, and (ii) in the case of a Termination Date on or after the Change Date, the Participant's Target Annual Incentive (determined as of the Termination Date) multiplied by (b) a fraction, the numerator of which equals the number of days from and including the first day of such fiscal year through and including the Termination Date, and the denominator of which equals 365.

2.31 "Retire" or "Retirement" means a voluntary Termination of Employment after attaining age 65 (or such other age at which the Company or Employer permits early retirement).

2.32 "Section 409A Deferred Compensation" means a deferral of compensation that is subject to (and not otherwise exempt from) the requirements of Section 409A of the Code.

2.33 "Severance Multiple" means:

(a) 6X for a Termination Date occurring before or absent a Change Date,

(b) 9X for a Termination Date occurring during the Post-Change Period.

2.34 "Target Annual Incentive", as of any date, means the amount equal to the product of a Participant's Base Salary multiplied by the percentage of such Base Salary to which such Participant would be entitled as an annual incentive, based on the terms in effect on such date under any annual incentive plans for the performance period for which the annual incentive is awarded if the performance goals established pursuant to such bonus plan were achieved at the 100% (target) level as of the end of the performance period, but disregarding any reduction in Target Annual Incentive that would constitute Good Reason.

2.35 "Termination Date" means the date of the receipt of the Notice of Termination by a Participant (if such Notice of Termination is given by the Company or the Participant's Employer) or by the Participant's Employer (if such Notice is given by the Participant), or any later date specified in the Notice of Termination but not more than 35 days after the giving of such Notice if the Notice of

Termination is given by the Participant for Good Reason and not more than 15 days after the giving of such Notice of Termination in all other cases, on which an Employee has a Termination of Employment; provided, however, that:

(a) if the Participant's employment is terminated by reason of death, the Termination Date shall be the date of the Participant's death;

(b) if the Participant's employment is terminated by reason of Disability, the Termination Date shall be the date assigned by the Company's Human Resource function;

(c) if no Notice of Termination is given, the Termination Date shall be the last date on which the Participant is at work; and

(d) if the Notice of Termination is for a Termination by the Participant for Good Reason, the Termination Date shall be the 35th day after the giving of the Notice of Termination if the Employer has not cured the Good Reason.

2.36 "Termination of Employment" means in respect of a Participant, a termination of employment as determined by the Committee; provided, however, that with respect to payment of any Section 409A Deferred Compensation, "Termination of Employment" shall mean "separation from service" within the meaning of Section 409A of the Code.

ARTICLE III
Participation and Eligibility for Benefits

3.01 Eligibility.

(a) Generally, Employees holding a position of vice president or a more senior position with the Company or an Affiliate are eligible to be selected by the Committee to participate in the Plan, subject to each such Employee fulfilling the requirements to participate as provided in Section 3.02. The Committee in its discretion also may designate selected Employees with a position below the vice president level to be eligible to participate in this Plan.

(b) Notwithstanding subsection (a), any individual who is (i) a party to an agreement ("Employment Agreement") between the individual and an Employer that provides for payments upon Termination of Employment (either before or after a Change in Control) or (ii) entitled to Section 409A Deferred Compensation paid in installments as severance after a separation from service pursuant to a broad-based severance plan; shall not be eligible to become a Participant in this Plan.

3.02 Participation. Except as provided in Section 3.01(b), each eligible Employee shall become a Participant in the Plan on the first date (not earlier than the Effective Date) on which he or she has been designated by the Committee as an Employee who is eligible to participate and he or she has delivered to the Company, within such timeframe as may be specified by the Committee, a signed Participation Agreement in substantially the form attached hereto as Appendix A.

3.03 Eligibility for Benefits. A Participant becomes eligible for benefits under the Plan if, prior to or absent a Change Date or during the Post-Change Period, the Participant has an Involuntary Termination or a Termination of Employment for Good Reason. For the avoidance of doubt, a Termination of Employment for Good Reason will be treated as having occurred during the Post-Change Period, notwithstanding the fact that actual separation from service occurs after the Post-Change Period has expired, if the Good Reason arises during the Post-Change Period, the Participant timely provides a Notice of Termination within 90 days of the occurrence of the event giving rise to such Good Reason, the Employer fails to cure the event constituting Good Reason within 30 days following receipt of the Notice of Termination and the Participant terminates employment within five days after the lapse of the cure period.

ARTICLE IV
Obligations of the Employer Upon Involuntary Termination Prior to or Absent a Change Date

4.01 Involuntary Termination. If a Participant has an Involuntary Termination, then unless Article V applies, the Employer's sole obligations to such Participant under the Plan shall be as follows:

(a) The Employer shall pay the Participant the following:

(i) all Accrued Obligations in a single lump sum payment within 15 days after the Termination Date or such earlier date as required by applicable law; and

(ii) subject to Section 9.01, an amount equal to the Base Salary determined as of the Termination Date, multiplied by the applicable Severance Multiple (the "Severance Payment"). The Severance Payment shall be paid in a single lump sum payment. The Severance Payment shall be made no more than 60 days after the Termination of Employment, provided the applicable revocation period for the release required by Section 9.01 has expired at that time, and subject to Section 10.11(c) and Section 10.11(e); and

(iii) subject to Section 9.01, the Participant's Pro-rata Annual Incentive for the Employer's fiscal year during which the Termination Date occurs, reduced (but not below zero) by the amount of any Annual Incentive previously paid to the Participant for such fiscal year (for example, if the Annual Incentive is paid quarterly and one or more quarterly payments have been made before the Termination Date); the Pro-rata Annual Incentive shall be paid at the same time and in the same form as the Annual Incentives for such fiscal year are paid to ongoing employees; but no later than two and one-half months after the last day of the fiscal year following the fiscal year in which the Termination Date occurs.

(b) The Employer shall provide for post-Termination of Employment nonqualified deferred compensation benefits, equity awards, and employee welfare benefits pursuant to the terms of the respective Plans and Policies under which such post-Termination of Employment benefits, awards and welfare benefits, if any, are provided, except as provided in (c) below.

(c) Subject to Section 9.01, if as of the Termination Date the Participant is participating in the Company's or the Employer's healthcare plan with respect to medical, vision, prescription and/or dental coverage and, as a result of the Termination of Employment, will be eligible for post-termination continuation coverage under Section 4980B of the Code ("COBRA"), then the Employer shall pay to the Participant, in a lump sum payment (the "Healthcare Assistance Payment"), an amount equal to (i) the excess of the monthly premium rate for such COBRA coverage for the Participant and his or her eligible dependents (measured as of the Termination of Employment) over the monthly premium rate payable by active employees (i.e., the non-Employer paid portion) for similar employer-provided coverage (measured as of the Termination of Employment), multiplied by (ii) the applicable Healthcare Assistance Multiple. The Healthcare Assistance Payment shall be made no more than 60 days after the Termination of Employment, provided the applicable revocation period for the release required by Section 9.01 has expired at that time, and subject to Section 10.11(c) and Section 10.11(e).

4.02 Termination for Any Other Reason. If a Participant has a Termination of Employment for any reason other than as described in Section 4.01 (including termination by the Employer for Cause, termination by the Employee other than for Good Reason, termination by the Employer or the Employee for Disability, Retirement, or termination on account of death), then unless Article V applies, the Employer's sole obligations to such Participant under the Plan shall be to pay the Participant all Accrued Obligations determined as of the Termination Date.

ARTICLE V
Obligations of the Employer on Involuntary Termination in the Post-Change Period

5.01 Application. If a Participant has an Involuntary Termination during the Post-Change Period a Participant shall be entitled to benefits under this Article V in lieu of, and not in addition to, benefits under Article IV. For the avoidance of doubt, a Termination of Employment for Good Reason will be treated as having occurred during the Post-Change Period, notwithstanding the fact that actual separation from service occurs after the Post-

Change Period has expired, if the Good Reason arises during the Post-Change Period, the Participant timely provides a Notice of Termination within 90 days of the occurrence of the event giving rise to such Good Reason, the Employer fails to cure the event constituting Good Reason within 30 days following receipt of the Notice of Termination and the Participant terminates employment within five days after the lapse of the cure period.

5.02 Involuntary Termination in the Post-Change Period. If a Participant has an Involuntary Termination during the Post-Change Period for which a Notice of Termination is timely given, then the Employer's sole obligations to such Participant under the Plan shall be as follows:

(a) The Employer shall pay the Participant the following:

(i) all Accrued Obligations in a single lump sum payment within 15 days after the Termination Date;

(ii) subject to Section 9.01, an amount equal to the sum of (a) Base Salary multiplied by the applicable Severance Multiple and (b) the Target Annual Incentive, each determined as of the Termination Date, ("Post-Change Severance Payment"); provided, however, that any reduction in the Participant's Base Salary or Target Annual Incentive that would qualify as Good Reason shall be disregarded for this purpose.

The Post-Change Severance Payment shall be paid no more than sixty days after the Termination of Employment, provided the applicable revocation period required for the release under Section 9.01 has expired at that time; and subject to Section 10.11(c) and Section 10.11(e).

(b) Post-Termination of Employment non-qualified deferred compensation benefits, equity awards, and employee welfare benefits shall be provided pursuant to the terms of the respective Plans and Policies under which such post-Termination of Employment benefits, awards and welfare benefits, if any, are provided, except as provided in (c) below.

(c) Subject to Section 9.01, if as of the Termination Date the Participant is participating in the Company's or the Employer's healthcare plan with respect to medical, vision, prescription and/or dental coverage and, as a result of the Termination of Employment, will be eligible for post-termination continuation coverage under Section 4980B of the Code ("COBRA"), then the Employer shall pay to the Participant, in a lump sum payment (the "Healthcare Assistance Payment"), an amount equal to (i) the excess of the monthly premium rate for such COBRA coverage for the Participant and his or her eligible dependents (measured as of the Termination of Employment) over the monthly premium rate payable by active employees (i.e., the non-Employer paid portion) for similar employer-provided coverage (measured as of the Termination of Employment), multiplied by (ii) the applicable Healthcare Assistance Multiple. The Healthcare Assistance Payment shall be made no more than 60 days after the Termination of Employment, provided the applicable revocation period for the release required by Section 9.01 has expired at that time, and subject to Section 10.11(c) and Section 10.11(e).

5.03 Termination on or After the Change Date for Any Other Reason. If a Participant has a Termination of Employment for which a Notice of Termination is given during the Post-Change Period, for any reason other than as described in Section 5.02 (including termination by the Employer for Cause, termination by the Employee other than for Good Reason, termination by the Employer or the Employee for Disability, Retirement, or termination on account of death), then the Employer's sole obligation to the Participant under this Plan shall be to pay the Participant all Accrued Obligations determined as of the Termination Date.

5.04 Limitation on Benefits.

(a) In the event it shall be determined that any payment or distribution by an Employer to or for the benefit of the Participant (whether paid or payable or distributed or distributable pursuant to the terms of this Plan or otherwise) (a "Payment") would be nondeductible by the Employer for Federal income tax purposes because of Section 280G of the Code, then the aggregate present value of amounts payable or distributable to or for the benefit of the Participant pursuant to this Plan ("Plan Payments") shall be reduced to the Reduced Amount if, and only if, by reason of such reduction, the net after-tax benefit received by the Participant, taking into account the applicable federal, state, local and foreign income, employment and other taxes, is greater than the net after-tax benefit that would be received by the Participant if no such reduction was made, taking into account the applicable federal, state, local and foreign income, employment and other taxes, including the excise tax imposed by Section 4999 of the Code. The "Reduced Amount" shall be an amount expressed in present value which maximizes the aggregate present value of Plan Payments without causing any Payment to be nondeductible by the Employer because of Section 280G of the Code. Such reduction shall be applied before any reduction of any other payments that are not Plan Payments unless the plan or agreement calling for such payments expressly provides to the contrary making specific reference to this Plan. Anything to the contrary notwithstanding, if the Reduced Amount under the Plan is zero and it is determined further that any Payment that is not a Plan Payment would nevertheless be nondeductible by the Employer for Federal income tax purposes because of Section 280G of the Code, then the aggregate present value of Payments which are not Plan Payments shall also be reduced (but not below zero) to an amount expressed in present value which maximizes the aggregate present value of Payments without causing any Payment to be nondeductible by the Employer because of Section 280G of the Code. For purposes of this Section, present value shall be determined in accordance with Section 280G(d)(4) of the Code.

(b) The Committee shall select a firm of certified public accountants of national standing, (the "Accounting Firm"), which may be the firm regularly auditing the financial statements of the Company or the Employer. The Accounting Firm shall make all determinations required to be made under this Section and shall provide detailed supporting calculations to the Company, the Employer and the Employee within 30 days after the Termination Date or such earlier time as is requested by the Company, and provide an opinion to the Participant that he or she has substantial authority not to report any Excise Tax on his or her Federal income tax return with respect to any Payments. Any such determination by the Accounting Firm shall be binding upon the Company, the Employer and the Participant. The Accounting Firm shall determine how much of the Plan Payment or Payments, as the case may be, shall be eliminated or reduced consistent with the requirements of this Section and any such reduction shall apply first to lump sum cash amounts payable pursuant to this Plan in the form of the Severance Payment or the Post-Change Severance Payment, as applicable. Subject to Sections 9.01, 10.11(c) and 10.11(e), within five business days thereafter, the Employer shall pay to or distribute to or for the benefit of the Participant such amounts as are then due to the Participant under this Plan.

(c) As a result of the uncertainty in the application of Section 280G of the Code at the time of the initial determination by the Accounting Firm or the Company hereunder, it is possible that Plan Payments or Payments, as the case may be, will have been made by the Employer which should not have been made ("Overpayment") or that additional Plan Payments or Payments, as the case may be, which will not have been made by the Employer could have been made ("Underpayment"), in each case, consistent with the calculations required to be made hereunder. In the event that the Accounting Firm, based upon the assertion of a deficiency by the Internal Revenue Service against the Employee which the Accounting Firm believes has a high probability of success determines that an Overpayment has been made, promptly on notice and demand the Participant shall repay to the Employer any such Overpayment paid or distributed by the Employer to or for the benefit of the Participant together with interest at the applicable Federal rate provided for in Section 7872(f)(2) of the Code; provided, however, that no such amount shall be payable by the Participant to the Employer if and to the extent

such payment would not either reduce the amount on which the Participant is subject to tax under Section 1 and Section 4999 of the Code or generate a refund of such taxes. In the event that the Accounting Firm, based upon controlling precedent or other substantial authority, determines that an Underpayment has occurred, any such Underpayment shall be promptly paid by the Employer to or for the benefit of the Participant together with interest at the applicable federal rate provided for in Section 7872(f)(2) of the Code.

ARTICLE VI
Administration

6.01 The Company and Committee.

(a) The Company shall have overall responsibility for the establishment, amendment and termination of the Plan. In carrying out its responsibilities hereunder, the Company shall act through the Committee. The Committee shall have, in its discretion, the responsibilities, duties, powers and authority, assigned to it in this Plan and any responsibilities, duties, powers and authority, under this Plan that are not specifically delegated to anyone else, including the following:

(i) to determine which individuals shall be selected as Participants.

(ii) to decide on questions concerning the Plan and the eligibility of any Participant to participate in the Plan, including whether the Participant should remain (or become) a Participant;

(iii) to determine the nature and timing of any Termination of Employment or the existence of Good Reason;

(iv) subject to any limitations under the Plan or applicable law, to make and enforce such rules and regulations and prescribe the use of such forms as it shall deem necessary for the efficient administration of the Plan;

(v) to require any person to furnish such information as it may request as a condition to receiving any benefit under the Plan;

(vi) to compute or have computed the amount of benefits that shall be payable to any person in accordance with the provisions of the Plan;

(vii) to construe and interpret the Plan and correct defects, supply omissions and reconcile inconsistencies in the Plan; and

(viii) to make all other decisions and determinations (including factual determinations) as the Committee may deem necessary or advisable in carrying out its duties and responsibilities or exercising its powers.

(b) Decisions of the Committee shall be final, conclusive and binding on all persons interested in the Plan, including Participants, beneficiaries and other persons claiming rights from or through a Participant.

6.02 Delegation of Committee Authority. The Committee may delegate to officers or employees of the Company, or committees thereof, the authority, subject to such terms as the Committee shall determine, to perform such administrative functions and exercise such administrative powers and authority, as the Committee in its discretion may determine. Such delegation may be revoked at any time.

6.03 Advisors and Agents of the Committee. The Committee may (i) authorize one or more of its members or an agent to execute or deliver any instrument, and make any payment on its behalf and (ii) utilize and cause the Company to pay for the services of associates and engage accountants, agents, clerks, legal counsel, record keepers and professional consultants (any of whom may also be serving an Employer or another Affiliate of the Company) to assist in the administration of this Plan or to render advice with regard to any responsibility under this Plan.

6.04 Records and Reports of the Committee. The Committee or its delegate shall maintain records and accounts relating to the administration of the Plan.

6.05 Limitation of Liability; Indemnification.

(a) The members of the Board and the Committee shall have no liability with respect to any action or omission made by them in good faith nor from any action made in reliance on (i) the advice or opinion of any accountant, legal counsel, medical adviser or other professional consultant or (ii) any resolutions of the Board certified by the secretary or assistant secretary of the Company. Each member of the Board, the Committee, and each employee to whom are delegated duties, responsibilities and authority with respect to the Plan shall be indemnified, defended, and held harmless by the Company and the Employers and their respective successors against all claims, liabilities, fines and penalties and all expenses (including but not limited to attorneys' fees) reasonably incurred by or imposed on such member or Participant that arise as a result of his actions or failure to act in connection with the operation and administration of the Plan, to the extent lawfully allowable and to the extent that such claim, liability, fine, penalty or expense is not paid for by liability insurance purchased by or paid for by the Company or an Employer. Notwithstanding the foregoing, the Company or an Employer shall not indemnify any person for any such amount incurred through any settlement or compromise of any action unless the Company or an Employer consents in writing to such settlement or compromise.

(b) The Company will continue to cover each Participant under its directors' and officers' insurance policy following the Termination Date for a period of time equal to the applicable statute of limitations. The Company shall indemnify and hold each Participant harmless to the fullest extent legally permitted or authorized by the Company's by-laws or, if greater, by the laws of the State of Delaware, as may be in effect from time to time, in respect of any liability, damage, cost or expense (including reasonable attorneys' fees) actually and reasonably incurred in connection with the defense of any claim, action, suit or proceeding to which the Participant is a party by reason of the Participant's being or having been an officer or director of the Company or any subsidiary or affiliate thereof, or the Participant's serving or having served at the request of such other entity as a director, officer, employee or agent of another corporation or of a partnership, joint venture, trust, business organization, enterprise or other entity, including service with respect to employee benefit plans. Without limiting the generality of the foregoing, the Company shall pay the expenses (including reasonable attorneys' fees) actually and reasonably incurred in defending any such claim, action, suit or proceeding in advance of its final disposition, upon receipt of the Participant's undertaking to repay all amounts advanced unless it is ultimately determined that Executive is entitled to be indemnified under this Section.

6.06 Plan Expenses. Expenses relating to the Plan before its termination shall be paid from the general assets of the Company or an Employer. Any individual who serves as a member of the Committee shall receive no additional compensation for such service.

ARTICLE VII
Amendments; Termination

7.01 Amendment or Termination of the Plan. The Company by duly adopted resolution of the Committee shall have the sole right to alter, amend or terminate this Plan in whole or in part at any time and to terminate the participation of any Employee; provided, however, that:

(a) any such adverse amendment or termination shall be effective only as to those Participants, if any, who have consented to such amendment or termination or who have received from the Company at least 12 months' prior written notice ("Amendment Notice" or "Expiration Notice," respectively) of such adverse amendment or termination that sets forth the date of termination or amendment ("Amendment Date" or "Expiration Date"), and

(b) no such Amendment Notice or Expiration Notice shall be effective as to any Participant if a Change Date occurs before the Amendment or Expiration Date specified in the Amendment Notice or Expiration Notice. Any purported Plan termination or amendment in violation of this Section 7.01 shall be void and of no effect.

ARTICLE VIII
Claims Procedure

8.01 Filing a Claim.

(a) No claim shall be required for benefit due under the Plan. Any individual eligible for benefits under this Plan who believes he or she is entitled to additional benefits or who desires to clarify his or her right to future benefits under the Plan ("Claimant") may submit his application for benefits ("Claim") to the Committee (or to such other person or persons as may be designated by the Committee) in writing in such form as is provided or approved by the Committee. The Committee shall be the named fiduciary for purposes of this Plan.

(b) When a Claim has been filed properly, it shall be evaluated and the Claimant shall be notified of the approval or the denial of the Claim within 90 days after the receipt of such Claim. A Claimant shall be given a written notice in which the Claimant shall be advised as to whether the Claim is granted or denied, in whole or in part. If a Claim is denied, in whole or in part, the notice shall contain (i) the specific reasons for the denial, (ii) references to pertinent provisions of this Plan on which the denial is based, (iii) a description of any additional material or information necessary to perfect the Claim and an explanation of why such material or information is necessary, and (iv) a description of the Plan's review procedure and time limits applicable to such procedures, including a statement of the Claimant's right to bring a civil action under Section 502(a) of ERISA following a benefit claim denial on review.

8.02 Review of Claim Denial. If a Claim is denied, in whole or in part, or if a Claim is neither approved nor denied within the 90-day period specified Section 8.01(b), the Claimant shall have the right, within 60 days after receipt of such denial (or after such claim is deemed denied), to (i) request that the Committee (or such other person or persons as shall be designated in writing by the Committee) review the denial or the failure to approve or deny the Claim, (ii) review pertinent documents, and (iii) submit issues and comments in writing.

(a) Within 60 days after such request is received, the Committee shall complete its review and give the Claimant written notice of its decision.

(b) The Committee shall include in its notice to Claimant (i) the specific reasons for its decision; (ii) references to pertinent provisions of this Plan on which its decision is based; (iii) a statement that the Claimant is entitled to receive, upon request and free of charge, reasonable access to, and copies of, the Plan

and all documents, records and other information relevant to his or her claim for benefits; and (iv) a statement describing the Claimant 's right to bring an action under Section 502(a) of ERISA.

(c) A Claimant shall have no right to seek review of a denial of benefits, or to bring any action in any court to enforce a Claim, before his filing a Claim and exhausting his rights to review under Sections 8.01 and 8.02.

8.03 Dispute Resolution. The Company and the Participant agree to attempt to resolve any dispute between them quickly and fairly through informal, good faith negotiations. If a mutually satisfactory resolution is not reached by such good faith negotiations within 45 days, the Company and the Participant agree that the state courts of North Carolina and, if the jurisdictional prerequisites exist at the time, the federal courts in the State of North Carolina, shall have sole and exclusive jurisdiction to hear and determine any dispute or controversy arising under or relating to this Plan. The Company and each Participant irrevocably (i) consents to the exclusive jurisdiction and venue of the courts of North Carolina and federal courts in the State of North Carolina, in any and all actions arising

under or relating to this Plan (including Appendix A and Appendix B hereto), and (ii) waives any jurisdictional defenses (including personal jurisdiction and venue) to any such action. The Committee's interpretation of Plan provisions, and any findings of fact, including eligibility to participate and eligibility for benefits, are final, shall be given deference by any court of law and will not be subject to "de novo" review unless shown to be arbitrary and capricious. The Company and Participant will each separately pay its counsel fees and expenses unless otherwise determined by a court of competent jurisdiction.

ARTICLE IX
Release; No Mitigation; No Duplication of Benefits; Recoupment

9.01 Release and Other Conditions Required. Any and all amounts payable and benefits or additional rights provided pursuant to this Plan other than the Accrued Obligations and amounts provided under Section 4.01(b) and 5.02(b) shall only be payable if: (a) the Participant (or Participant's beneficiary in the event of Participant's death) timely delivers to the Employer and does not revoke a general waiver and release of claims in favor of the Company and related parties ("Company Parties") in substantially the form attached hereto as Appendix B, with such changes therein as may be necessary to make it valid and encompassing under applicable law, and the revocation period related to such general waiver and release has expired; (b) Participant resigns from any other positions Participant holds with the Company or an Affiliate, with such resignation to be effective no later than the Termination Date (or such other date as requested by the Company); (c) Participant returns all Company property; and (d) Participant complies with all post-termination obligations under the Confidentiality, Inventions and Non-Competition Agreement that Participant signed in connection with his or her employment with the Company or an Affiliate. The general waiver and release shall be executed and delivered (and the revocation period related thereto, if any, shall have lapsed without revocation having been made) within sixty (60) days following the Termination Date.

9.02 No Mitigation. No Participant shall have any duty to mitigate the amounts payable under this Plan by seeking or accepting new employment or self-employment following termination. Except as specifically otherwise provided in this Plan, all amounts payable pursuant to this Plan shall be paid without reduction regardless of any amounts of salary, compensation or other amounts that may be paid or payable to the Participant as the result of the Participant's employment by another employer or self-employment.

9.03 No Duplication of Benefits. Subject to Section 10.11(f), to the extent that a Participant shall have received severance payments or other severance benefits under any other Plan or agreement of the Company before receiving severance payments or other severance benefits pursuant to Article IV or Article V, the severance payments or other severance benefits under such other Plan or agreement shall reduce (but not below

zero) the corresponding severance payments or other severance benefits to which such Participant shall be entitled under Article IV or Article V. To the extent that a Participant accepts payments made pursuant to Article IV or Article V, he shall be deemed to have waived his right to receive a corresponding amount of future severance payments or other severance benefits under any other Plan or agreement of the Company. Payments and benefits provided under the Plan shall be in lieu of any termination or severance payments or benefits for which the Participant may be eligible under any of the Plans or Policy of the Company or an Affiliate or under the Worker Adjustment Retraining Notification Act of 1988 or any similar statute or regulation.

9.04 Recoupment Policy. The payments and benefits provided under this Plan shall be subject to recovery under any clawback, recovery or recoupment policy which the Company or an Employer may adopt from time to time, including without limitation the Company's existing recoupment policy and any policy which the Company or an Employer may be required to adopt under Section 954 of the Dodd-Frank Wall Street Reform and Consumer Protection Act or other applicable law and the rules and regulations of the U.S. Securities and Exchange Commission thereunder or the requirements of any national securities exchange on which the Company's common stock may be listed.

ARTICLE X
Miscellaneous

10.01 Participant Information. Each Participant shall notify the Committee of his home address and each change of home address. Each Participant shall also furnish the Committee with any other information and data that the Committee considers necessary for the proper administration of the Plan. The information provided by the Participant under this Section shall be binding on the Participant, his dependents and any beneficiary for all purposes of the Plan and the Committee shall be entitled to rely on any representations regarding personal facts made by a Participant, his dependents or beneficiary, unless such representations are known to be false.

10.02 Electronic Media. Under procedures authorized or approved by the Committee, any form for any notice, election, designation, or similar communication required or permitted to be given to or received from a Participant under this Plan may be communicated or made available to the Company or Participant in an electronic medium (including computer network, e-mail or voice response system) and any such communication to or from a Participant or Beneficiary through such electronic media shall be fully effective under this Plan for such purposes as such procedures shall prescribe. Any record of such communication retrieved from such electronic medium under its normal storage and retrieval parameters shall be effective as a fully authentic executed writing for all purposes of this Plan absent manifest error in the storage or retrieval process.

10.03 Notices. All notices and other communications under this Plan shall be in writing and delivered by hand, by nationally recognized delivery service that promises overnight delivery, or by first-class registered or certified mail, return receipt requested, postage prepaid, addressed as follows:

If to Participant, at his most recent home address on file with the Company.

If to the Company or any other Employer,

Florina Gordon
P.O. Box 110085
Research Triangle Park
North Carolina, 27709

or to such other address as either party shall have furnished to the other in writing. Notice and communications

shall be effective the day of receipt if delivered by hand or electronically, the second business day after deposit with an overnight delivery service if so deposited, or the fifth business day after mailing in the case of first class registered or certified mail.

10.04 No Employment Contract. The existence of this Plan shall not confer any legal or other rights upon any Participant to employment or continuation of employment. Employees are employees at will. The Company and each Employer reserve the right to terminate any Participant with or without cause at any time, notwithstanding the provisions of this Plan.

10.05 Headings. The headings in this Plan are for convenience of reference and shall not be given substantive effect.

10.06 Construction. Any masculine pronoun shall also mean the corresponding female or neuter pronoun, as the context requires. The singular and plural forms of any term used in this Plan shall be interchangeable, as the context requires.

10.07 Joint and Several Liability. In the event that any Employer incurs any obligation to a Participant pursuant to this Plan, such Employer, the Company and each Affiliate, if any, of which such Employer is a subsidiary shall be jointly and severally liable with such Employer for such obligation.

10.08 Successors. This Plan shall inure to the benefit of and be binding upon the Company, each Employer and their respective successors and assigns. The Company will require any successor (whether direct or indirect, by purchase, merger, consolidation or otherwise) to all or substantially all of the business or assets of any Employer to assume expressly and agree to comply with this Plan in the same manner and to the same extent that the Employer would be required to comply with it if no such succession had taken place. Failure to require such assumption will be a material breach of this Plan. Any successor to the business or assets of any Employer that assumes or agrees to perform this Plan by operation of law, contract, or otherwise shall be jointly and severally liable with the Employer under this Plan as if such successor were the Employer.

10.09 Payments to Beneficiary. If a Participant dies after becoming entitled to payments under Section 4.01 or 5.02 but before receiving all amounts to which he is entitled under this Plan, then, subject to Section 9.01, such remaining amounts shall be paid to his or her estate.

10.10 Non-Alienation of Benefits. Benefits payable under this Plan shall not be subject in any manner to anticipation, alienation, sale, transfer, assignment, pledge, encumbrance, charge, garnishment, execution or levy of any kind, either voluntary or involuntary, before actually being received by the Participant, and any such attempt to dispose of any right to benefits payable under this Plan shall be void.

10.11 Tax Matters.

(a) An Employer may withhold from any amounts payable under this Plan or from any other amount due a Participant any federal, state, local and other income, employment and other taxes that are required to be withheld pursuant to any applicable law or regulation.

(b) The intent of the Employers is that payments and benefits under this Plan are exempt from or comply with Section 409A of the Code and, accordingly, to the maximum extent permitted, this Plan shall be interpreted in accordance with that intent. To the extent that any provision hereof is modified in order to comply with Section 409A of the Code, such modification shall be made in good faith and shall, to the maximum extent reasonably possible, maintain the original intent and economic benefit to the Participant and the Employer of the applicable provision without violating the provisions of Section 409A of the Code. In no event whatsoever

shall the Company or any Employer be liable for any additional tax, interest or penalty that may be imposed on a Participant or Employee by Section 409A of the Code or damages for failing to comply with Section 409A of the Code.

(c) If a Participant is deemed on the Termination Date to be a "specified employee" within the meaning of that term under Section 409A(a)(2)(B) of the Code, then with regard to any payment or the provision of any benefit that is considered "nonqualified deferred compensation" under Section 409A of the Code payable on account of a "separation from service" and which becomes payable under the terms of the Plan within six months following such separation from service, then, to the extent required by Section 409A of the Code, such payment or benefit shall not be made or provided until the date which is the earlier of (i) the day after the expiration of the six-month period measured from the date of such "separation from service" of the Employee, and (ii) the date of the Employee's death. Upon the expiration of the six-month delay period, all payments and benefits delayed pursuant to this provision (whether they would have otherwise been payable in a single sum or in installments in the absence of such delay) shall be paid or reimbursed to the Employee in a lump sum without interest, and all remaining payments and benefits due under this Plan shall be paid or provided in accordance with the normal payment dates specified for them herein.

(d) To the extent that reimbursements or other in-kind benefits under this Plan constitute "nonqualified deferred compensation" for purposes of Section 409A of the Code, (A) all expenses or other reimbursements hereunder shall be made on before to the last day of the taxable year following the taxable year in which such expenses were incurred by the Participant, (B) any right to reimbursement or in-kind benefits shall not be subject to liquidation or exchange for another benefit, and (C) no such reimbursement, expenses eligible for reimbursement, or in-kind benefits provided in any taxable year shall in any way affect the expenses eligible for reimbursement, or in-kind benefits to be provided, in any other taxable year.

(e) For purposes of Section 409A of the Code, the Participant's right to receive installment payments pursuant to this Plan shall be treated as a right to receive a series of separate and distinct payments. Whenever this Plan specifies a payment period with reference to a number of days, the actual date of payment within the specified period shall be within the sole discretion of the Employer and the Participant shall have no right to directly or indirectly specify the date of payment; provided that if the timing of the payment is contingent on the lapse or expiration of the revocation period for the release required under Section 9.01 and such revocation period could, as of the Termination Date, lapse either in the same year as the Termination Date or in the following year, the actual date of payment within the specified period shall be in such following year.

(f) Notwithstanding any other provision of this Plan to the contrary, in no event shall any payment or benefit under this Plan that constitutes "nonqualified deferred compensation" for purposes of Section 409A of the Code be subject to offset by any other amount unless such offset would not trigger additional taxes and penalties under Section 409A of the Code.

10.12 Governing Law. The provisions of this Plan shall be governed, construed and administered in accordance with the laws of the State of North Carolina, other than its laws respecting choice of law, except to the extent preempted by federal law, including ERISA.

10.13 Severability. If any one or more Articles, Sections or other portions of this Plan are declared by any court or governmental authority to be unlawful or invalid, such unlawfulness or invalidity shall not serve to invalidate any Article, Section or other portion not so declared to be unlawful or invalid; provided that if the release required under Section 10.01 is declared to be unlawful or unenforceable, then no payments shall be made the payment of which is subject to such release, and the Participant shall forthwith restore to the Employer any payments previously made that were subject to such release. Any Article, Section or other portion so declared to

be unlawful or invalid shall be construed so as to effectuate the terms of such Article, Section or other portion to the fullest extent possible while remaining lawful and valid.

ARTICLE XI
ERISA Compliance Provisions

11.01 Summary Plan Description Provisions

(a) *General Information*. This document also serves as the summary plan description for the Plan. The following is additional information about the Plan.

Plan sponsor:	Liquidia Technologies, Inc. EIN: 20-1926605 P.O. Box 110085 Research Triangle Park North Carolina, 27709 Tel: 919-328-4428
Plan name:	Liquidia Technologies Executive Severance and Change in Control Plan
Plan number:	502
Type of plan:	Severance pay plan that is a "welfare benefit plan" under ERISA.
Funding:	Paid from the Company's general assets.
Plan year:	Calendar year
Plan Administrator:	Compensation Committee of the Board of Directors of Liquidia Technologies, Inc. P.O. Box 110085 Research Triangle Park North Carolina, 27709 Tel: (919) 328-4428
Agent for service of legal process:	If you have to bring legal action against the Plan for any reason, legal process can be served on the Plan Administrator at P.O. Box 110085, Research Triangle Park, North Carolina, 27709.

(b) *Statement of ERISA Rights*. As a Participant in the Plan, you are entitled to certain rights and protections under the ERISA. ERISA provides that all Plan Participants shall be entitled to:

(i) *Receive Information About Your Plan and Benefits*

(1) Examine, without charge, at the Plan Administrator's office and at other specified locations, such as worksites, all documents governing the Plan, including a copy of the latest annual report (Form 5500 Series) filed by the Plan with the U.S. Department of Labor and available at the Public Disclosure Room of the Employee Benefits Security Administration.

(2) Obtain, upon written request to the Plan Administrator, copies of documents governing the operation of the Plan, including copies of the latest annual report (Form 5500 Series) and updated summary plan description. The administrator may make a reasonable charge for the copies.

(3) Receive a summary of the Plan's annual financial report, if applicable. The Plan Administrator is required by law to furnish each Participant with a copy of this summary annual report.

(ii) *Prudent Actions by Plan Fiduciaries*

In addition to creating rights for Plan Participants, ERISA imposes duties upon the people who are responsible for the operation of the employee benefit plan. The people who operate your plan, called "fiduciaries" of the Plan, have a duty to do so prudently and in the interest of you and other Plan Participants and beneficiaries. No one, including your employer, or any other person, may fire you or otherwise discriminate against you in any way to prevent you from obtaining a welfare benefit or exercising your rights under ERISA.

(iii) *Enforce Your Rights*

If your claim for a welfare benefit is denied or ignored, in whole or in part, you have a right to know why this was done, to obtain copies of documents relating to the decision without charge, and to appeal any denial, all within certain time schedules.

Under ERISA, there are steps you can take to enforce the above rights. For instance, if you request a copy of Plan documents or the latest annual report from the Plan and do not receive them within 30 days, you may file suit in a Federal court. In such a case, the court may require the Plan Administrator to provide the materials and pay you up to $110 a day until you receive the materials, unless the materials were not sent because of reasons beyond the control of the administrator.

If you have a claim for benefits, which is denied or ignored, in whole or in part, you may file suit in a state or Federal court. If you are discriminated against for asserting your rights, you may seek assistance from the U.S. Department of Labor, or you may file suit in a Federal court. The court will decide who should pay court costs and legal fees. If you are successful the court may order the person you have sued to pay these costs and fees. If you lose, the court may order you to pay these costs and fees, for example, if it finds your claim is frivolous.

(iv) *Assistance with Your Questions*

If you have any questions about your Plan, you should contact the Plan Administrator. If you have any questions about this statement or about your rights under ERISA or if you need assistance in obtaining documents from the Plan Administrator, you should contact the nearest office of the Employee Benefits Security Administration, U.S. Department of Labor, listed in your telephone directory or the Division of Technical Assistance and Inquiries, Employee Benefits Security Administration, U.S. Department of Labor, 200 Constitution Avenue N.W., Washington, D.C. 20210. You may also obtain certain publications about your rights and responsibilities under ERISA by calling the publications hotline of the Employee Benefits Security Administration.

Adopted: March 3, 2017
Compensation Committee of the Board of Directors
Liquidia Technologies, Inc.

APPENDIX A
PARTICIPATION AGREEMENT

This PARTICIPATION AGREEMENT (this "Agreement" or this "Restrictive Covenants Agreement") is entered into as of , 20 , between Liquidia Technologies, Inc. (the "Company") and (the "Executive") (jointly the "Parties") pursuant to which the Executive accepts participation in the Liquidia Technologies Executive Severance and Change in Control Plan (the "Severance Plan") subject to the terms and conditions thereof as amended from time to time.

REASONS FOR THIS AGREEMENT: During Executive's relationship with the Company, Executive has learned, will learn, or has or will have access to, trade secrets and important proprietary and confidential information related to the operations and business of Liquidia Technologies, Inc. and its subsidiaries and affiliates (collectively, the "Company's Business").

Executive acknowledges executing and being subject to the terms of the Confidentiality, Invention and Non-Competition Agreement (the "Restrictive Covenants Agreement"). [*To the extent a participant has not previously entered into the Confidentiality, Invention and Non-Competition Agreement, the participant will need to execute it in order to participate in plan.*] In consideration of employment or continued employment, participation in the Severance Plan and other valuable consideration, the receipt and sufficiency of which are acknowledged, Executive agrees to continue to be subject to, and abide by, such Restrictive Covenants Agreement.

IN WITNESS WHEREOF, the Company and the Executive have executed this Participation Agreement as of the date first written above.

PARTICIPANT:

_____ _____
(signature)

LIQUIDIA TECHNOLOGIES,INC:

By: _____

_____
(print name)
Its: _____

APPENDIX B
GENERAL RELEASE AND WAIVER

1. I, , in consideration of and subject to the performance by Liquidia Technologies, Inc. (together with its Affiliates, the the "Company Parties"), of its obligations under the Liquidia Technologies Executive Severance and Change in Control Plan effective as of [ ], as amended from time to time before the date hereof (the "Plan"), do hereby release and forever discharge as of the date hereof the Company Parties and their respective affiliates, subsidiaries and direct or indirect parent entities and all present, former and future shareholders, directors, officers, agents, representatives, employees, successors and assigns of the Company and/or its respective affiliates, subsidiaries and direct or indirect parent entities (collectively, the "Released Parties") to the extent provided below (this "General Release"). The Released Parties are intended to be third-party beneficiaries of this General Release, and this General Release may be enforced by each of them in accordance with the terms hereof in respect of the rights granted to such Released Parties hereunder. Terms used herein but not otherwise defined shall have the meanings given to them in the Plan.

2. I understand that any payments or benefits paid or granted to me under Section 4.01 or 5.02 of the Plan (other than the Accrued Obligations) represent, in part, consideration for signing this General Release and are not salary, wages or benefits to which I was already entitled. I understand and agree that I will not receive certain of the payments and benefits specified in the Plan unless I execute this General Release and do not revoke this General Release within the time period permitted hereafter. Such payments and benefits will not be considered compensation for purposes of any employee benefit plan, program, policy or arrangement maintained or hereafter established by the Company or its Affiliates.

3. Except as provided in paragraphs 4, 5, and 11 below and except for the provisions of the Plan which expressly survive the termination of my employment with the Company, I knowingly and voluntarily (for myself, my heirs, executors, administrators and assigns) release and forever discharge the Company and the other Released Parties from any and all claims, suits, controversies, actions, causes of action, cross-claims, counter-claims, demands, debts, compensatory damages, liquidated damages, punitive or exemplary damages, other damages, claims for costs and attorneys' fees, or liabilities of any nature whatsoever in law and in equity, both past and present (through the date that this General Release becomes effective and enforceable) and whether known or unknown, suspected, or claimed against the Company or any of the Released Parties which I, my spouse, or any of my heirs, executors, administrators or assigns, may have, which arise out of or are in any way related to events, acts, conduct, or omissions occurring prior to or on the date you sign this Agreement, including, but not limited to (all of the following collectively referred to herein as the "Claims"):

(a) any and all claims that in any way result from, or relate to, Executive's hire, employment with or separation from employment with the Company Parties, whether pursuant to federal, state or local law, statute, regulation, ordinance, executive order or common law including, but not limited to, wrongful discharge of employment, constructive discharge from employment, termination in violation of public policy, discrimination, harassment, retaliation, breach of contract, both express and implied, breach of a covenant of good faith and fair dealing, both express and implied; promissory estoppel, negligent or intentional infliction of emotional distress, negligent or intentional misrepresentation, negligent or intentional interference with contract or prospective economic advantage, unfair business practices, defamation, libel, slander, negligence, personal injury, assault, battery, invasion of privacy, false imprisonment, and conversion, including costs and attorneys' fees;

(b) any and all claims for violation of any federal, state or municipal statute, including, but not limited to, Title VII of the Civil Rights Act of 1964, as amended; the Civil Rights Act of 1991; the Age Discrimination in Employment Act of 1967, as amended (including the Older Workers Benefit Protection Act); the Equal Pay Act of 1963, as amended; the Americans with Disabilities Act of 1990; the Family and Medical Leave

Act of 1993; the Worker Adjustment Retraining and Notification Act; the Employee Retirement Income Security Act of 1974; any applicable Executive Order Programs; the Fair Labor Standards Act; the National Labor Relations Act ("NLRA"); the North Carolina Retaliatory Employment Discrimination Act; the North Carolina Persons with Disabilities Protection Act; the North Carolina Equal Employment Practices; and any other statute that pertains or relates to, or otherwise touches upon, the employment relationship between the Company Parties and Executive.

4. I agree that this General Release does not waive or release any rights or claims that I may have under the Age Discrimination in Employment Act of 1967, as amended ("ADEA") which arise after the date I execute this General Release and does not extend to any claims that, by statute, may not be waived. I acknowledge and agree that my separation from employment with the Company Parties in compliance with the terms of the Plan shall not serve as the basis for any claim or action (including, without limitation, any claim under the ADEA).

5. I agree that I hereby waive all rights to sue or obtain equitable, remedial or punitive relief from any or all Released Parties of any kind whatsoever in respect of any Claim, including, without limitation, reinstatement, back pay, front pay, and any form of injunctive relief. Notwithstanding the above, I further acknowledge that I am not waiving and am not being required to waive any right that cannot be waived under law, including the right to file a claim for workers' compensation benefits or unemployment insurance benefits; provided, however, that I waive, to the extent permitted by law, any right or ability to be a class or collective action representative or to otherwise participate in any putative or certified class, collective or multi-party action or proceeding based on any such claims in which any of the Company Parties is a party. Additionally, I am not waiving (i) any right to the Accrued Obligations or any severance benefits to which I am entitled under the Plan, (ii) any claim relating to directors' and officers' liability insurance coverage or any right of indemnification under the Company's organizational documents or otherwise, (iii) my rights as an equity or security holder in the Company or its Affiliates, (iv) my rights under any equity awards that survive termination of employment; or (v) my rights under any retirement plan that is "qualified" under Section 401(a) of the Internal Revenue Code of 1986. Furthermore, nothing in this General Release prevents me from filing a charge or complaint, reporting to, cooperating with, communicating with, or participating in any proceeding before the Securities and Exchange Commission, the Equal Employment Opportunity Commission, the Occupational Safety and Health Administration, the United States Department of Labor, the National Labor Relations Board, or other similar state or local agency (the "Government Agencies"), or from exercising any rights pursuant to Section 7 of the NLRA, or from taking any action protected under the whistleblower provisions of any federal securities law ("Protected Activities"), none of which activities shall constitute a breach of the release, non-disparagement or confidentiality clauses of this General Release. I understand that, in connection with such Protected Activity, I am permitted to disclose documents or other information as permitted by law, but I shall take all reasonable precautions to prevent any unauthorized use or disclosure of any information that may constitute confidential or proprietary information under my Confidentiality, Invention and Non-Competition Agreement to any parties other than the Government Agencies, and further understand that "Protected Activity" does not include the disclosure of any attorney-client privileged communications with the Company Parties, and that any such disclosure without the written consent of the Company Parties shall constitute a material breach of this General Release.

6. In signing this General Release, I acknowledge and intend that it shall be effective as a bar to each and every one of the Claims hereinabove mentioned or implied, except those described in Section 5 above. I expressly consent that this General Release shall be given full force and effect according to each and all of its express terms and provisions, including those relating to unknown and unsuspected Claims (notwithstanding any state or local statute that expressly limits the effectiveness of a general release of unknown, unsuspected and unanticipated Claims), if any, as well as those relating to any other Claims hereinabove mentioned or implied. I acknowledge and agree that this waiver is an essential and material term of this General Release and that without

such waiver I would not have become a Participant in the Plan. I further agree that in the event I should bring a Claim seeking damages against the Company, or in the event I should seek to recover against the Company in any Claim brought by a governmental agency on my behalf, this General Release shall serve as a complete defense to such Claims to the maximum extent permitted by law.

7. I agree that neither this General Release, nor the furnishing of the consideration for this General Release, shall be deemed or construed at any time to be an admission by the Company, any Released Party or myself of any improper or unlawful conduct.

8. I agree not to disparage the Company Parties, and the Company Parties' directors, managers, partners, employees, and agents, in any manner likely to be harmful to them or their business, business reputation or personal reputation, provided that I may respond accurately and fully to any question, inquiry or request for information when required by legal process and otherwise engage in a Protected Activity.

9. I agree that this General Release and the Plan are confidential and agree not to disclose any information regarding the terms of this General Release or the Plan, except to my immediate family and any tax, legal or other counsel that I have consulted regarding the meaning or effect hereof or to a successor employer respecting the terms of any restrictive covenants to which I may be subject, or as required by law, and I will instruct each of the foregoing not to further disclose the same to anyone.

10. Any non-disclosure provision in this General Release does not prohibit or restrict me (or my attorney) from responding to any inquiry about this General Release or its underlying facts and circumstances by the Securities and Exchange Commission (SEC), the Financial Industry Regulatory Authority (FINRA), any other securities regulatory organization or any governmental entity.

11. I represent that I am not aware of any claim by me other than the claims that are released by this General Release. I acknowledge that I may hereafter discover claims or facts in addition to or different than those which I now know or believe to exist with respect to the subject matter of the release set forth in paragraph 3 above and which, if known or suspected at the time of entering into this General Release, may have materially affected this General Release and my decision to enter into it. I represent and warrant that I have never suffered an on the job or occupational injury or incurred any leave, wage or overtime claims, whether pursuant to the Fair Labor Standards Act, Family Medical Leave Act, or otherwise, during my employment, or in the alternative that any such claims have been resolved to my complete satisfaction, and as such, no such claims by me or on my behalf exist as of the date of this Agreement. I further represent that I have been provided by the Company Parties all wages, severance, vacation, benefits, commissions, bonuses, expense reimbursements, or other amounts owed to me by the Company Parties, other than the Accrued Obligations and the payments or benefits paid or granted to me under Section 4.01 or 5.02 of the Plan.

12. Notwithstanding anything in this General Release to the contrary, this General Release shall not relinquish, diminish, or in any way affect any rights or claims arising out of any breach by the Company or by any Released Party of the Plan after the date hereof.

13. The Parties understand and acknowledge that this General Release constitutes a compromise and settlement of actual or potential disputed claims. No action taken by the Parties hereto, or either of them, either previously or in connection with this General Release shall be deemed or construed to be:

(a) an admission of the truth or falsity of any claims made or any potential claims; or

(b) an acknowledgment or admission by either Party of any fault or liability whatsoever to the other Party or to any third party.

14. I waive any claim to reinstatement or re-employment with the Released Parties and agree not to bring any claim based upon the failure or refusal of the Released Parties to employ me hereafter. If I seek employment or become employed with the Released Parties (knowingly or unknowingly), this General Release shall conclusively be deemed the sole and exclusive reason for denying such application for employment with the Released Parties and/or the basis for my discharge if hired.

15. In entering into this General Release, neither Party has relied upon any representations or statements made by the other Party hereto which are not specifically set forth in this General Release.

16. The language in all parts of this Agreement will be construed, in all cases, according to its fair meaning, and not for or against either Party hereto. The Parties acknowledge that each Party and its counsel have reviewed and revised this Agreement and that the normal rule of construction to the effect that any ambiguities are to be resolved against the drafting party will not be employed in the interpretation of this Agreement. The captions of the Paragraphs of this Agreement are for convenience of reference only and in no way define, limit or affect the scope or substance of any Paragraph of this Agreement.

17. Whenever possible, each provision of this General Release shall be interpreted in, such manner as to be effective and valid under applicable law, but if any provision of this General Release is held to be invalid, illegal or unenforceable in any respect under any applicable law or rule in any jurisdiction, such invalidity, illegality or unenforceability shall not affect any other provision or any other jurisdiction, but this General Release shall be reformed, construed and enforced in such jurisdiction as if such invalid, illegal or unenforceable provision had never been contained herein.

18. BY SIGNING THIS GENERAL RELEASE, I REPRESENT AND AGREE THAT:

(a) I HAVE READ IT CAREFULLY; AND I UNDERSTAND ALL OF ITS TERMS AND KNOW THAT I AM GIVING UP IMPORTANT RIGHTS, INCLUDING BUT NOT LIMITED TO, RIGHTS UNDER THE AGE DISCRIMINATION IN EMPLOYMENT ACT OF 1967, AS AMENDED, TITLE VII OF THE CIVIL RIGHTS ACT OF 1964, AS AMENDED; THE EQUAL PAY ACT OF 1963, THE AMERICANS WITH DISABILITIES ACT OF 1990; AND THE EMPLOYEE RETIREMENT INCOME SECURITY ACT OF 1974, AS AMENDED;

(b) I VOLUNTARILY CONSENT TO EVERYTHING IN IT;

(c) THE CONSIDERATION GIVEN TO ME FOR THIS GENERAL RELEASE IS IN ADDITION TO ANYTHING OF VALUE TO WHICH I WAS ALREADY ENTITLED;

(d) I HAVE BEEN ADVISED TO CONSULT WITH AN ATTORNEY BEFORE EXECUTING IT AND I HAVE DONE SO OR, AFTER CAREFUL READING AND CONSIDERATION, I HAVE CHOSEN NOT TO DO SO OF MY OWN VOLITION;

(e) I HAVE HAD [21 DAYS/45 DAYS] FROM THE DATE OF MY RECEIPT OF THIS RELEASE TO CONSIDER IT, AND THE CHANGES MADE SINCE MY RECEIPT OF THIS RELEASE ARE NOT MATERIAL OR WERE MADE AT MY REQUEST AND WILL NOT RESTART THE REQUIRED [21/45]-DAY PERIOD;

(f) I UNDERSTAND THAT I HAVE SEVEN (7) DAYS AFTER THE EXECUTION OF THIS RELEASE TO REVOKE IT AND THAT THIS RELEASE SHALL NOT BECOME EFFECTIVE OR ENFORCEABLE UNTIL THE REVOCATION PERIOD HAS EXPIRED;

(g) I HAVE SIGNED THIS GENERAL RELEASE KNOWINGLY AND VOLUNTARILY AND WITH THE ADVICE OF ANY COUNSEL RETAINED TO ADVISE ME WITH RESPECT TO IT; AND

(h) I AGREE THAT THE PROVISIONS OF THIS GENERAL RELEASE MAY NOT BE AMENDED, WAIVED, CHANGED OR MODIFIED EXCEPT BY AN INSTRUMENT IN WRITING SIGNED BY AN AUTHORIZED REPRESENTATIVE OF THE COMPANY AND BY ME.

SIGNED: _____ DATED: _____

Participant

Exhibit 23.4

Consent of CapVal-American Business Appraisers, LLC

We hereby consent to (i) the filing of this consent as an exhibit to the Form S-1 of Liquidia Technologies, Inc. (the "Company") and any amendments thereto (the "Registration Statement") by the Company for the use of our methodologies, conclusions and other information cited in "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Notes to Financial Statements" sections with reference points outlined and described expressly within Schedule I hereto only, and (ii) the use of and reference to our name in the Registration Statement, including, but not limited to, under the "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Notes to Financial Statements" sections. Any information not appearing within Schedule I hereto is not authorized for use and does not form part of this consent exhibit.

The information used in the Registration Statement, including, but not limited to, under the "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Notes to Financial Statements" sections and described on Schedule I hereto, are obtained from appraisal reports provided by us to the Company.

The information utilized by the Company and provided by us was limited to an opinion of the fair value of the Company's common stock as of specific valuation dates, and the related value of stock options solely for purposes of compliance with Accounting Standards Codification Section 718. These dates differed from the dates of the Company's historical financial statements and the date of this filing. The values of the common stock and related options at the statement dates and at the respective valuation dates would be expected to be different, and the difference could be material. These reports and conclusions are not intended by us, and should not be construed by the reader, to be investment advice in any manner whatsoever.

By: /s/ Geoffrey S. Grisham, ASA, CVA
Name: Geoffrey S. Grisham, ASA, CVA
Title: Member
CapVal-American Business Appraisers, LLC

May 10, 2018

Schedule I

The information listed below and appearing in the "Management's Discussion and Analysis of Financial Condition and Results of Operations" section of the prospectus:

> These third-party valuations were performed in accordance with the guidance outlined in the American Institute of Certified Public Accountants' Accounting and Valuation Guide, Valuation of Privately-Held-Company Equity Securities Issued as Compensation. Our common stock valuations were prepared using the hybrid method, which used market approaches and, in the November 8, 2016 and February 2, 2018 valuations, initial public offering pre-money valuation estimates provided by management, to estimate our enterprise value. The hybrid method is a probability-weighed expected return method, or PWERM, where the equity value in one or more of the scenarios is calculated using an option-pricing method, or OPM. The OPM treats common stock and preferred stock as call options on the total equity value of a company, with exercise prices based on the value thresholds at which the allocation among the various holders of a company's securities changes. Under this method, the common stock has value only if the funds available for distribution to stockholders exceeded the value of the preferred stock liquidation preferences at the time of the liquidity event, such as a strategic sale or a merger. The PWERM is a scenario-based methodology that estimates the fair value of common stock based upon an analysis of future values for the company, assuming various outcomes. The common stock value is based on the probability-weighted present value of expected future investment returns considering each of the possible outcomes available as well as the rights of each class of stock. The future value of the common stock under each outcome is discounted back to the valuation date at an appropriate risk-adjusted discount rate, a discount for lack of marketability is applied to each indication, and probability weighted to arrive at an indication of value for the common stock. Third-party valuations were performed at various dates by CapVal-American Business Appraisers, LLC, which resulted in valuations of our common stock of $0.35 per share as of November 8, 2015, $1.21 as of November 8, 2016, and $0.553 per share as of February 2, 2018.

The information listed below and appearing in the "Notes to Financial Statements" section of the prospectus:

> The purchase prices were not material and were based upon prior third-party appraisals conducted by CapVal-American Business Appraisers, LLC. The valuations of Envisia common stock were for Internal Revenue Code Section 409A, or 409A, and ASC 718, *Compensation-Stock Compensation*, or ASC 718, purposes. These standards of value may not be appropriate for a market transaction, and furthermore, the dates are different and therefore such number of shares could be different for this purpose.
