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As confidentially submitted to the Securities and Exchange Commission on October 29, 2014.

This draft registration statement has not been publicly filed with the Securities and Exchange Commission and all information herein remains strictly confidential.

Registration No. 333-

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

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**FORM S-1**  
REGISTRATION STATEMENT  
UNDER  
THE SECURITIES ACT OF 1933

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**Flex Pharma, Inc.**

(Exact Name of Registrant as Specified in Its Charter)

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**Delaware**  
(State or Other Jurisdiction of  
Incorporation or  
Organization)

**2834**  
(Primary Standard Industrial  
Classification Code Number)

**46-5087339**  
(I.R.S. Employer  
Identification Number)

**800 Boylston Street, 24<sup>th</sup> Floor**  
**Boston, MA 02199**  
**(617) 874-1821**

(Address, Including Zip Code, and Telephone Number, Including Area Code, of Registrant's Principal Executive Offices)

---

**Christoph Westphal, M.D., Ph.D.**  
**President and Chief Executive Officer**  
**Flex Pharma, Inc.**  
**800 Boylston Street, 24<sup>th</sup> Floor**  
**Boston, MA 02199**  
**(617) 874-1821**

(Name, Address, Including Zip Code, and Telephone Number, Including Area Code, of Agent for Service)

---

**Copies to:**

**Lester Fagen**  
**Marc Recht**  
**Miguel Vega**  
**Cooley LLP**  
**500 Boylston Street, 14<sup>th</sup> Floor**  
**Boston, Massachusetts 02116**  
**(617) 937-2300**

**Peter N. Handrinos**  
**Nathan Ajiashvili**  
**Latham & Watkins LLP**  
**John Hancock Tower**  
**200 Clarendon Street**  
**Boston, Massachusetts 02116**  
**(617) 948-6000**

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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, as amended (the "Securities Act"), check the following box.

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) 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.

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.

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.

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

Large Accelerated Filer

Accelerated Filer

Non-accelerated Filer   
(Do not check if  
a smaller reporting company)

Smaller Reporting Company

**CALCULATION OF REGISTRATION FEE**

<b>Title of Securities Being Registered</b>	<b>Proposed Maximum Aggregate Offering Price<sup>(1)(2)</sup></b>	<b>Amount of Registration Fee</b>
Common Stock, \$0.0001 par value per share	\$	\$

(1) In accordance with Rule 457(o) under the Securities Act of 1933, as amended, the number of shares being registered and the proposed maximum offering price per share are not included in this table.

(2) Estimated solely for purposes of computing the amount of the registration fee pursuant to Rule 457(o) under the Securities Act of 1933, as amended. Includes the offering price of shares that the underwriters have the option to purchase to cover over-allotments, if any.

**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 that specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the registration statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.**

The information contained in this preliminary prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This preliminary prospectus is not an offer to sell these securities and is not a soliciting offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED OCTOBER 29, 2014

PRELIMINARY PROSPECTUS

Shares



Flex Pharma, 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 intend to apply to list our common stock on \_\_\_\_\_ under the symbol "FLPH".

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 11 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.

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	<u>PER SHARE</u>	<u>TOTAL</u>
Initial public offering price	\$ _____	\$ _____
Underwriting discounts and commissions <sup>(1)</sup>	\$ _____	\$ _____
Proceeds to us, before expenses	\$ _____	\$ _____

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<sup>(1)</sup> We refer you to "Underwriting" beginning on page 135 of this prospectus for additional information regarding total underwriter compensation.

Delivery of the shares of common stock is expected to be made on or about \_\_\_\_\_, 2014. 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 underwriting discounts and commissions payable by us will be \$ \_\_\_\_\_, and the total proceeds to us, before expenses, will be \$ \_\_\_\_\_.

**Jefferies**

**Piper Jaffray**

**JMP Securities**

**Cantor Fitzgerald & Co.**

**Roth Capital Partners**

Prospectus dated \_\_\_\_\_, 2014

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We are responsible for the information contained in this prospectus and in any free-writing prospectus we prepare or authorize. We have not authorized anyone to provide you with different information, and we take no responsibility for any other information others may give you. We are not, and the underwriters are not, making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should not assume that the information contained in this prospectus is accurate as of any date other than the date on the front of this prospectus.

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## PROSPECTUS SUMMARY

*This summary highlights information contained in other parts of this prospectus. Because it is only a summary, it does not contain all of the information that you should consider before investing in shares of our common stock and it is qualified in its entirety by, and should be read in conjunction with, the more detailed information appearing elsewhere in this prospectus. You should read the entire prospectus carefully, especially "Risk Factors" and our financial statements and the related notes, before deciding to buy shares of our common stock. Unless the context requires otherwise, references in this prospectus to "Flex Pharma," "we," "us" and "our" refer to Flex Pharma, Inc.*

### Company Overview

We are a biopharmaceutical company that is developing innovative and proprietary treatments for nocturnal leg cramps and spasms associated with severe neuromuscular conditions. Novel insights regarding neuromuscular physiology from our co-founders form the basis of our development efforts. We believe that activation of certain receptors in primary sensory neurons reduces the repetitive firing, or hyperexcitability, of alpha-motor neurons, thereby preventing or reducing the frequency and intensity of muscle cramps and spasms. We also believe that we are the only company developing products based on this mechanism of muscle cramp and spasm inhibition. We have conducted three randomized, blinded, placebo-controlled cross-over studies of our proprietary treatment, which have shown a statistically significant reduction in the intensity of muscle cramps induced in healthy normal volunteers. We intend to initially focus our drug development efforts on developing a product to treat nocturnal leg cramps. There is no drug product currently available in the United States that has been approved to treat nocturnal leg cramps.

In the second quarter of 2015, we intend to initiate at least one human proof-of-concept study of our proprietary treatment for individuals who suffer from nocturnal leg cramps. Nocturnal leg cramps are muscle cramps that occur during sleep and can cause distress, interrupted sleep, reduced quality of life and interference with activities of daily living. We believe our primary target patient population will include individuals that suffer from nocturnal leg cramps daily or weekly and, based on independent third-party survey results, we estimate that approximately four million U.S. adults over the age of 65 suffer from nocturnal leg cramps on a daily basis. Nocturnal leg cramps also affect people younger than 65 and we believe there is an opportunity to serve this patient population as well.

A muscle cramp is a sudden and painful contraction of a muscle that may last several minutes and, in many instances, results in soreness lasting several days. Frequently experienced by patients with severe neuromuscular conditions, such as multiple sclerosis or spinal cord injury, or SCI, spasticity is an abnormal, involuntary tightness of muscles and is characterized by uncontrolled movement, muscle stiffness, difficulty straightening joints, reduced mobility, limb weakness, shaking, intermittent spasms and pain. Dystonias are characterized by sustained or intermittent muscle contractions causing abnormal, often repetitive, movements, postures or both.

Recent research has shown that muscle cramping is caused by the uncontrolled and repetitive firing of alpha-motor neurons in the spinal cord, resulting in maintained contraction of the muscle. We believe that by reducing this firing of the alpha-motor neurons that control muscle contraction, muscle cramping can be reduced or prevented. Motor neurons respond to inputs from complex circuits in the spinal cord that both reduce neuronal and muscle activity, known as "inhibitory" input, and increase neuronal and muscle activity, known as "excitatory" input. Our approach exploits a general principle of neural circuits — that strong excitatory input from one source in the body enhances the overall inhibitory tone in the spinal cord and thereby reduces neuronal response to other excitation throughout the body. We believe this reduction of neuron excitation has the effect of reducing muscle cramps and spasms.

Our proprietary treatment stimulates primary sensory neurons in the mouth, esophagus and stomach by activating transient receptor potential, or TRP, cation channel receptors. We believe that the effects of the

TRP activators in our proprietary treatment directly interact with the TRP subfamily A, member 1, or TRPA1, and TRP vanilloid-1 receptor, or TRPV1, ion channels in a topical and local fashion to yield strong, centrally-acting excitatory inputs from primary sensory neurons. We believe that the signals activated in the TRPA1 and TRPV1 ion channels are channeled directly to the spinal cord, creating an inhibitory effect from the central nervous system on alpha-motor neurons throughout the body, thereby reducing neuron excitation and muscle cramps. Moreover, we believe that the physical properties of the TRP activators largely limit their action to sensory neurons in the mouth, esophagus and stomach, with minimal concentrations reaching the bloodstream and, consequently, fewer potential systemic side-effects. Muscle contractions associated with dystonia and spasticity are also believed to result from abnormal repetitive firing of alpha-motor neurons. Our proprietary treatment contains three active ingredients: (1) ginger extract, an activator of both TRPV1 and TRPA1 ion channels, (2) cinnamon extract, an activator of TRPA1 ion channels and (3) capsicum, an activator of TRPV1 ion channels.

We may also initiate human proof-of-concept studies of our proprietary treatment in patients outside the United States that suffer from spasms associated with severe neuromuscular conditions and other conditions where patients experience abnormal muscle contractions, including multiple sclerosis, cervical dystonia and SCI. According to the National Institute of Neurological Disorders and Stroke, between 250,000 and 350,000 people in the United States suffer from multiple sclerosis, or MS, approximately 84% of whom experience spasticity. According to the National Spasmodic Torticollis Association, cervical dystonia affects approximately 90,000 people in the United States and we estimate, based on industry sources, that spasticity following SCI affects at least 150,000 people in the United States.

In parallel with the development of our drug product candidates, we are also developing a consumer brand with products based on the same mechanism of action as our proprietary treatment. Our consumer brand and products will be targeted towards athletes experiencing exercise-associated muscle cramps, or EAMCs. EAMCs are painful, spasmodic and involuntary contractions of skeletal muscle that occur during or following exercise in individuals with no underlying metabolic, neurological or endocrine pathology. EAMCs can be experienced by individuals participating in any sport but are particularly prevalent in athletes that engage in high-intensity activities, such as running, cycling and triathlons. There are a number of well-known sports drinks and other consumer products used to prevent EAMCs. However, we do not believe any of these products have been proven to be clinically effective in preventing EAMCs. We have commenced formulation and commercialization efforts of our cornerstone product to address this attractive market, and we anticipate launching our consumer brand and cornerstone product in the first quarter of 2016.

We were formed in February 2014 and are led by our scientific co-founders, Roderick MacKinnon, M.D. and Bruce Bean, Ph.D., and our President, Chief Executive Officer and Chairman, Christoph Westphal, M.D., Ph.D. Dr. MacKinnon, a member of the National Academy of Sciences, was awarded the Nobel Prize in Chemistry in 2003 for his work on ion channel activation, the foundation of our approach to preventing muscle cramping. Dr. Bean is a member of the National Academy of Sciences and the Robert Winthrop Professor of Neurobiology at Harvard Medical School, where he oversees a leading research laboratory studying the biophysics of sodium, calcium and potassium ion signaling in relation to pain processing. Dr. Westphal has co-founded and served as the Chief Executive Officer of several biotechnology companies, including Alnylam Pharmaceuticals, Inc., Acceleron Pharma Inc, Sirtris Pharmaceuticals, Inc., Momenta Pharmaceuticals, Inc. and Verastem, Inc. Dr. Westphal also co-founded Alnara Pharmaceuticals, Inc., OvaScience, Inc. and Concert Pharmaceuticals, Inc.

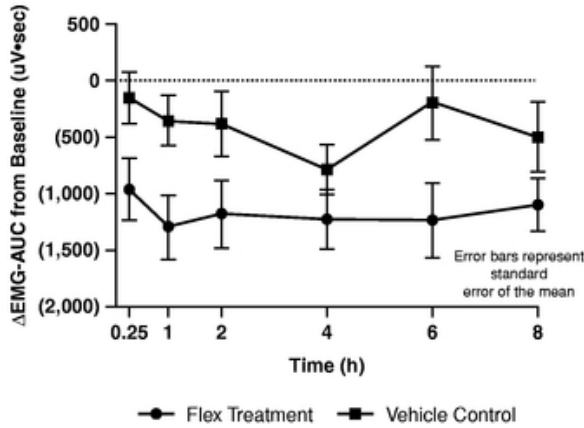
### **Clinical Development**

In 2014, we completed three randomized, blinded, placebo-controlled cross-over studies, which we refer to as Flex-001, Flex-002 and Flex-003, of our proprietary treatment in a total of 37 healthy normal volunteers. In each study, our proprietary treatment showed statistical significance in reducing muscle cramps as compared to vehicle control, with good safety and tolerability. These studies support our belief that TRP activation reduces the repetitive firing of alpha-motor neurons to prevent or reduce muscle cramps. Further,

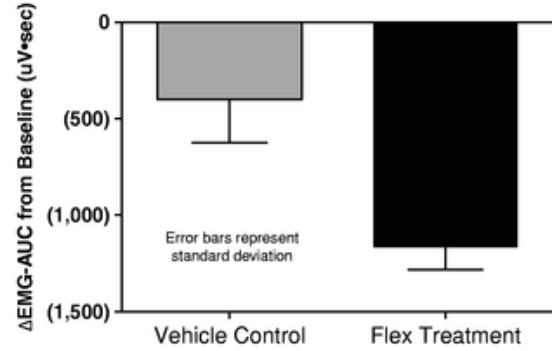
when the data from Flex-001, Flex-002 and Flex-003 are aggregated, our proprietary treatment showed statistically significant overall treatment effect in the 37 healthy normal volunteers (analysis of variance, or ANOVA,  $p < 0.0001$ ).

In our studies, we measured the duration and intensity of electrically induced muscle cramps in healthy normal volunteers using electromyography or EMG. Figure 1 below depicts the reduction in subjects' muscle cramps at various timepoints following administration of our proprietary treatment or vehicle control in all three studies combined. Figure 2 below depicts the aggregate reduction in subjects' muscle cramps across all timepoints when data from all three studies are combined.

**Figure 1**



**Figure 2**



**Product Development**

Our proprietary treatment forms the basis of both our drug product and consumer product development efforts. We plan to study our proprietary treatment's safety and efficacy to develop prescription drugs that treat nocturnal leg cramps, spasms associated with severe neuromuscular conditions and other conditions where patients experience abnormal muscle contractions. Additionally, we are modifying our proprietary treatment's product characteristics to specifically formulate our consumer product for the athletic market to prevent EAMCs. The following table summarizes the development path for our proprietary treatment for both our drug product candidates and our consumer brand and cornerstone product.

**Drug Product Candidates**

<u>Target Indications</u>	<u>Current Development Status</u>	<u>Future Development Plans</u>
Nocturnal leg cramps	<ul style="list-style-type: none"> <li>Initiating at least one human proof-of-concept, or POC, study of our proprietary treatment in the second quarter of 2015</li> <li>Evaluating initiation of one or more human POC studies of our proprietary treatment for one or more indications</li> </ul>	<ul style="list-style-type: none"> <li>Phase 2 registration-directed clinical trial of drug product candidates if results from one or more POC studies are favorable</li> <li>Phase 2 clinical trial of drug product candidates if results from POC studies are favorable</li> </ul>
MS spasticity, cervical dystonia and/or SCI spasticity		

## Consumer Product

### Target Market

Exercise-associated muscle cramps, or EAMCs

### Current Development Status

- Formulation and launch efforts

### Future Development Plans

- Anticipating launch of our consumer brand and cornerstone product in the first quarter of 2016

We are initially focusing our drug development efforts on developing a product to treat nocturnal leg cramps using the TRP activators from our proprietary treatment. In the second quarter of 2015, we plan to initiate at least one human proof-of-concept study to evaluate the efficacy and tolerability of our proprietary treatment in individuals suffering from nocturnal leg cramps. In this randomized, blinded, placebo-controlled cross-over design study, we plan to compare our proprietary treatment to a vehicle control in individuals suffering from nocturnal leg cramps at least four nights per week. The first individual is expected to be enrolled in the second quarter of 2015, with each individual tested over a six-week period. We believe this study will take approximately 12 to 15 months to complete.

Because the TRP activators in our proprietary treatment have been generally recognized as safe, or GRAS, by the U.S. Food and Drug Administration, or the FDA, when used in ingested food products, we believe we may be able to expedite the timeline to bring a drug product candidate to market. If the results of one or more of our human proof-of-concept studies are favorable, we intend to submit one or more investigational new drug, or IND, applications to the FDA for drug products comprised of purified TRP activators derived from our proprietary treatment. We also plan to discuss with regulatory authorities our intent to initiate a Phase 2 registration-directed clinical trial for a drug product candidate intended to treat nocturnal leg cramps.

We expect to launch our consumer brand with our cornerstone product in the first quarter of 2016. We do not believe there is any product that has been shown to be clinically effective in preventing EAMCs. We expect our cornerstone product to include ingredients from our proprietary treatment, specifically formulated to address the consumer market, and we believe it will be subject to regulation by the FDA as a dietary supplement.

### Our Strategy

Our strategy is to become a leading biopharmaceutical company focused on treating muscle cramps, spasms associated with severe neuromuscular conditions and other conditions where patients experience abnormal muscle contractions. We intend to develop products using TRP activators in our proprietary treatment, leveraging our experienced management team and our relationships with top scientific advisors to expedite our drug and consumer product development efforts. The key elements of our strategy are as follows:

- Rapidly develop and advance our drug product candidates for the treatment of nocturnal leg cramps, which represents an area of significant unmet need;
- Expand our drug development efforts into severe neuromuscular conditions of significant unmet need;
- Develop and launch our consumer brand and products for the prevention of EAMCs;
- Collaborate selectively to augment and accelerate our research, development and commercialization efforts; and
- Pursue the acquisition or in-licensing of product candidates.

### Financing History

Since inception, we have financed our operations through a series of private placements of our series A and series B convertible preferred stock with several investors, including Bessemer Venture Capital, EcoR1



Capital, Jennison Associates, Lightstone Ventures and the Longwood Fund, providing total net proceeds of \$41.0 million.

Under the terms of the series A convertible preferred stock purchase agreement entered into in March 2014, we issued and sold an aggregate of 15,775,221 shares of our series A convertible preferred stock in a series of closings from March 2014 through May 2014. Under the terms of the series B convertible preferred stock purchase agreement entered into in July 2014, we issued and sold an aggregate of 14,078,647 shares of our series B convertible preferred stock in a series of closings from July 2014 through October 2014. All of our outstanding shares of series A and series B convertible preferred stock will be converted into shares of our common stock on a one-for-one basis upon the closing of this offering.

### **Risks Associated with Our Business**

Our business is subject to many risks and uncertainties of which you should be aware before you decide to invest in our common stock. These risks are discussed more fully under "Risk Factors" in this prospectus. Some of these risks include:

- We are a development-stage company with limited operating history and a history of an operating loss. We anticipate that we will continue to incur losses for the foreseeable future.
- We have never generated any product revenues and may never become profitable.
- We will require additional capital beyond this offering prior to filing for regulatory approval for, or commercializing, any of our drug product candidates.
- We cannot be certain that any drug product candidate we develop will enter clinical trials, receive regulatory approval or be successfully commercialized.
- We rely on third-parties to conduct the clinical studies of our proprietary treatment, which could delay or limit the future development of our drug product candidates.
- We have not completed the development of our consumer products and may not be successful in generating substantial revenue from our consumer brand and products.
- We may be unable to adequately maintain and protect our proprietary intellectual property assets, which could impair our commercial opportunities.
- Our future growth and ability to compete depends on retaining our key personnel and recruiting additional qualified personnel.

### **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, 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. These provisions include:

- 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 in our initial registration statement;
- Reduced disclosure about our executive compensation arrangements;
- No requirement that we solicit non-binding 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 \$1.0 billion or more; (ii) the last day of our fiscal year following the fifth anniversary of the date of the completion of this

offering; (iii) the date on which we have issued more than \$1.0 billion in non-convertible 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 Securities and Exchange Commission, or 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. Also, we have irrevocably elected to "opt out" of the exemption for the delayed adoption of certain accounting standards and, therefore, will be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

#### **Corporate and Other Information**

We were incorporated in Delaware in February 2014. Our principal executive offices are located at 800 Boylston Street, 24<sup>th</sup> Floor, Boston, Massachusetts 02199, and our telephone number is (617) 874-1821. Our corporate website address is [www.flex-pharma.com](http://www.flex-pharma.com). Information contained on or accessible through our website is not a part of this prospectus, and the inclusion of our website address in this prospectus is an inactive textual reference only.

This prospectus contains references to our trademarks and to trademarks belonging to other entities. Solely for convenience, trademarks and trade names referred to in this prospectus, including logos, artwork and other visual displays, may appear without the ® or TM symbols, but such references are not intended to indicate, in any way, that their respective owners will not assert, to the fullest extent under applicable law, their rights thereto. We do not intend our use or display of other companies' trade names or trademarks to imply a relationship with, or endorsement or sponsorship of us by, any other companies.

## THE OFFERING

Common stock offered by us	shares ( shares if the underwriters' option to purchase additional shares is exercised in full)
Common stock to be outstanding after this offering	shares ( shares if the underwriters' option to purchase additional shares is exercised in full)
Option to purchase additional shares	The underwriters have the option to purchase from us up to a maximum of additional shares of common stock. The underwriters can exercise this option at any time within 30 days from the date of this prospectus.
Use of proceeds	<p>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. This assumes a public offering price of \$ , which is the midpoint of the price range set forth on the cover page of this prospectus. We intend to use the net proceeds from this offering for:</p> <ul style="list-style-type: none"><li>• \$ million to fund research and development efforts of our drug product candidates for the treatment of nocturnal leg cramps and spasms associated with severe neuromuscular conditions;</li><li>• \$ million for the sales and marketing efforts to launch our consumer brand and products; and</li><li>• the remainder to fund working capital and general corporate purposes, which may include the acquisition or licensing of drug product candidates, technologies, compounds, other assets or complementary businesses.</li></ul> <p>See "Use of Proceeds" for more information.</p>
Listing	We intend to apply to list our common stock on under the symbol "FLPH."
Lock-up agreements	We have agreed with the underwriters, subject to certain exceptions, not to offer, sell or dispose of any common stock or securities convertible into or exchangeable or exercisable for any common stock during the 180-day period following the date of this prospectus. Members of our board of directors, our executive officers and holders of all our outstanding capital stock and optionholders have agreed to substantially similar lock-up provisions, subject to certain exceptions. See "Underwriting."
Dividend policy	We have never paid or declared any cash dividends on our common stock, and we do not anticipate paying any cash dividends on our common stock in the foreseeable future. See "Dividend Policy."

Directed share program                      At our request, the underwriters have reserved for sale, at the initial public offering price up to                      shares of common stock offered by this prospectus for sale to some of our directors, officers, employees and persons with whom we have a business relationship. If these persons purchase reserved shares of common stock, this will reduce the number of shares of common stock available for sale to the public. Any reserved shares of common stock that are not so purchased will be offered by the underwriters to the public on the same terms as the other shares of common stock offered by this prospectus.

Risk factors                                      You should read the "Risk Factors" section of this prospectus for a discussion of certain factors to consider carefully before deciding to purchase any shares of our common stock.

The number of shares of our common stock to be outstanding after this offering is based on shares of common stock outstanding as of                      , 2014, after giving effect to the conversion of our outstanding convertible preferred stock into                      shares of common stock in connection with the closing of this offering, and excludes:

- shares of common stock issuable upon the exercise of outstanding stock options as of                      , 2014, at a weighted-average exercise price of \$                      per share; and
- shares of common stock reserved for future issuance under our 2014 equity incentive plan, or the 2014 plan (including                      shares of common stock reserved for issuance under our previously existing 2014 equity incentive plan, or the 201 pre-IPO plan, which shares will be added to the shares reserved under the 2014 plan upon its effectiveness), which will become effective upon the execution and delivery of the underwriting agreement for this offering.

Unless otherwise indicated, all information contained in this prospectus assumes:

- the conversion of all our outstanding convertible preferred stock into an aggregate of                      shares of common stock;
- no exercise of the outstanding options described above;
- no exercise by the underwriters of the option to purchase up to an additional                      shares of our common stock;
- the filing of our amended and restated certificate of incorporation and the adoption of our amended and restated bylaws immediately prior to the closing of this offering; and
- an initial public offering price of \$                      per share, which is the midpoint of the price range set forth on the cover page of this prospectus.

**SUMMARY FINANCIAL DATA**

The following table summarizes our financial data. We have derived the statement of operations data for the period from February 26, 2014 (inception) to June 30, 2014, and the balance sheet data as of June 30, 2014 from our audited financial statements, included elsewhere in this prospectus. Our historical results are not necessarily indicative of results to be expected for the remainder of 2014 or any period in the future. The summary financial data presented below should be read in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our financial statements and the related notes thereto, included elsewhere in this prospectus. The summary financial data in this section is not intended to replace our financial statements and the related notes thereto.

	Period from February 26, 2014 (Inception) to June 30, 2014
<b>Statement of Operations Data:</b>	
Operating expenses:	
Research and development	\$ 1,129,667
General and administrative	1,155,365
<b>Total operating expenses</b>	<b>2,285,032</b>
Loss from operations	(2,285,032)
Interest income	2,658
<b>Net loss attributable to common stockholders</b>	<b>\$ (2,282,374)</b>
<b>Net loss per share attributable to common stockholders — basic and diluted<sup>(1)</sup></b>	<b>\$ (0.36)</b>
Weighted-average number of common shares used in net loss per share attributable to common stockholders — basic and diluted <sup>(1)</sup>	6,395,527
<b>Pro forma net loss per share attributable to common stockholders — basic and diluted (unaudited)<sup>(1)</sup></b>	<b>\$ (0.12)</b>
Weighted-average number of common shares used in pro forma net loss per share attributable to common stockholders — basic and diluted (unaudited) <sup>(1)(2)</sup>	18,329,592

	As of June 30, 2014		
	Actual	Pro forma <sup>(3)</sup>	Pro forma as adjusted <sup>(4)(5)</sup>
<b>Balance Sheet Data:</b>			
Cash	\$ 14,287,264		
Working capital <sup>(6)</sup>	13,582,267		
Total assets	14,515,515		
Convertible preferred stock	15,637,032		
Total stockholders' (deficit) equity	(1,959,369)		

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- (1) See Note 1 and Note 11 of our financial statements included elsewhere in this prospectus for an explanation of the method used to compute basic and diluted net loss per share of common stock, unaudited pro forma basic and diluted net loss per share of common stock and the weighted-average number of shares used in computation of the per share amounts.
- (2) The number of weighted-average common shares on a pro forma basis includes the conversion of all shares of series A convertible preferred stock outstanding at June 30, 2014 into shares of common stock, but does not give effect to the issuance and sale and subsequent conversion of all outstanding shares of our series B convertible preferred stock into shares of our common stock upon the closing of this offering.
- (3) The unaudited pro forma balance sheet data assumes the conversion of all of our outstanding shares of series A and series B convertible preferred stock into an aggregate of shares of our common stock, as if the conversion had occurred on February 26, 2014, or the issuance date, if later. See Note 1 to our financial statements appearing elsewhere in this prospectus.
- (4) Pro forma as adjusted balance sheet data give effect to the pro forma balance sheet data adjustments described in footnote (3) above as well as the sale of shares of our common stock in this offering at an assumed initial public offering price of \$ per share (the midpoint of the price range set forth on the cover page of this prospectus) and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us.
- (5) A \$1.00 increase (decrease) in the assumed initial public offering price of \$ per share (the midpoint of the price range set forth on the cover page of this prospectus) would increase (decrease) the pro forma as adjusted amount of each of cash, working capital, total assets and total stockholders' (deficit) equity by \$ million, assuming the number of shares offered by us as stated on the cover page of this prospectus remains the same and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us. Similarly, a one million share increase (decrease) in the number of shares offered by us, as set forth on the cover page of this prospectus, would increase (decrease) the pro forma as adjusted amount of each of cash, working capital, total assets and total stockholders' (deficit) equity by \$ million assuming the assumed initial public offering price of \$ per share (the midpoint of the price range set forth on the cover page of this prospectus) remains the same and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us.
- (6) We define working capital as current assets less current liabilities.
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## RISK FACTORS

*An investment in shares of our common stock involves a high degree of risk. You should carefully consider the following information about these risks, together with the other information appearing elsewhere in this prospectus, before deciding to invest in our common stock. The occurrence of any of the following risks could have a material adverse effect on our business, financial condition, results of operations and future growth prospects. In these circumstances, the market price of our common stock could decline, and you may lose all or part of your investment.*

### **Risks Related to Our Financial Condition and Need for Additional Capital**

**We are a development-stage company and have limited operating history and a history of operating loss. We anticipate that we will continue to incur losses for the foreseeable future.**

We are a development-stage biopharmaceutical company with limited operating history. Since inception, we have incurred a significant loss. We incurred a net loss of \$2,282,374 from February 26, 2014, the date of our inception, to June 30, 2014.

Our losses have resulted principally from expenses incurred in research and development of our product candidates and from general and administrative expenses that we have incurred while building our business infrastructure. We expect to incur substantial and increased expenses as we expand our development activities and advance our clinical programs and as we accelerate the development and commercialization of our consumer brand. We also expect an increase in our expenses associated with creating additional infrastructure to support operations as a public company. As a result of the foregoing, we expect to continue to incur significant and increasing operating losses and negative cash flows for the foreseeable future.

To date, we have financed our operations through private placements of equity securities. We have no products approved for commercialization and have never generated any product revenues. Biopharmaceutical product development is highly speculative undertaking and involves a substantial degree of risk.

**We have never generated any product revenues and may never become profitable.**

We have never generated any product revenues and currently do not have any marketed consumer products or drug products approved for marketing. Our ability to generate revenue from drug products and achieve profitability depends on our ability to successfully complete the development of, and obtain the marketing approvals necessary to commercialize, one or more of our drug product candidates. Until, and unless, we receive approval from the FDA and other regulatory authorities overseas for one or more of our drug product candidates, we cannot market or sell our products as drugs and will not have drug product revenues. Any drug product candidate we develop will require significant time and capital before we can apply for approval from the FDA. Further, we do not expect to begin marketing or selling a consumer product until the first quarter of 2016 and do not expect to generate significant revenue from our consumer products for several years, if ever. Therefore, for the foreseeable future we do not expect to achieve any significant product revenues and will have to fund all of our operations and capital expenditures from cash on hand, licensing fees and grants, if any, and potentially, future equity or debt offerings.

Even if we succeed in developing and commercializing one or more drug product candidates, we expect to incur substantial losses for the foreseeable future and may never become profitable. The successful development and commercialization of any drug product candidates will require us to perform a variety of functions, including:

- undertaking pre-clinical development and clinical trials;
- hiring additional personnel;
- formulating and manufacturing products, including stability testing for any drug product candidate;

- obtaining regulatory approval;
- initiating and conducting sales and marketing activities;
- obtaining coverage and adequate reimbursement from third-party payors; and
- implementing additional internal systems and infrastructure.

Because of the numerous risks and uncertainties with pharmaceutical product development, we are unable to accurately predict the timing or amount of increased expenses or when, or if, we will be able to achieve profitability. In cases where we are successful in obtaining regulatory approvals to market one or more of our drug product candidates, our revenue will be dependent, in part, upon the size of the markets in the territories for which we gain regulatory approval, the accepted price for the product, the ability to obtain coverage and reimbursement, and whether we own the commercial rights for that territory. If the number of our addressable patients is not as significant as we estimate, the indication approved by regulatory authorities is narrower than we expect, or the treatment population is narrowed by competition, physician choice or treatment guidelines, we may not generate significant revenue from sales of such drug products, even if approved. Additionally, if we are not able to generate sufficient revenue from the sale of any approved drug products, we may never become profitable.

The successful development and commercialization of our consumer brand and products will require us to perform a variety of functions, including:

- further developing our consumer product based on the TRP activators in our proprietary treatment;
- developing the brand strategy for our consumer product and, following early adoption of our consumer products, expanding our product offering and maintaining brand loyalty;
- entering into distribution and other strategic arrangements with third-party retailers and other potential distributors of our products; and
- developing new product lines and extensions.

Even if we are able to develop and commercialize a consumer brand and products, the number of athletes that suffer from EAMCs, or the frequency of EAMCs experienced by athletes, may not be as large as we estimate, and we may not generate significant revenue from sales of our consumer products, and we may never achieve profitability.

We may be unable to develop and commercialize any product candidate, including our consumer brand, and, even if we do, may never achieve profitability. Even if we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis. Our failure to become and remain profitable would decrease the value of our company and could impair our ability to raise capital, expand our business or continue our operations. A decline in the value of our company could cause you to lose all or part of your investment.

**Even if this offering is successful, we expect that we will need substantial additional funding. If we are unable to raise capital when needed, we could be forced to delay, reduce or eliminate our product development programs or commercialization efforts.**

Developing pharmaceutical products, including conducting pre-clinical studies and clinical trials, is a time-consuming, expensive and inherently uncertain process that takes years to complete. We expect that our expenses will increase substantially as we commence our proof-of-concept studies of our proprietary treatment for individuals with nocturnal leg cramps, launch and commercialize our consumer brand, our cornerstone product, and future products, commence and complete Phase 2 registration-directed clinical trials of our proprietary drug treatment for individuals with nocturnal leg cramps if results from our proof-of-concept studies are favorable, seek marketing approvals for our proprietary drug treatment, and advance our other product candidates. If we obtain marketing approval for our drug product candidates that we develop, we expect to incur significant commercialization expenses related to product sales, marketing,



distribution and manufacturing. We also expect an increase in our expenses associated with creating additional infrastructure to support operations as a public company.

We estimate that the net proceeds from this offering will be approximately \$            million, assuming an initial public offering price of \$            per share (the mid-point of the price range set forth on the cover page of this prospectus) and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us. As of June 30, 2014, we would have had cash of \$39.7 million on a pro forma basis after giving effect to the issuance of our series B convertible preferred stock. Based upon our current operating plan, we believe that the net proceeds from this offering, together with our existing cash, will enable us to fund our operating expenses and capital requirements for the next            . This estimate is based on assumptions that may prove to be wrong, and we could use our available capital resources sooner than we currently expect. Changes may occur beyond our control that would cause us to consume our available capital before that time, including changes in and progress of our development activities, acquisitions of additional drug candidates, increased costs of marketing and selling our consumer products and changes in regulation. Our future funding requirements will depend on many factors, including but not limited to:

- the timing and size of any future clinical trials and our ability to successfully complete them in a timely manner;
- the number of indications that we pursue for our drug product candidates;
- our ability to obtain approval from the FDA to market our product candidates;
- market acceptance of our consumer products or any product candidates, if approved;
- the cost and timing of establishing sales, marketing and distribution capabilities;
- the cost of our research and development activities;
- the ability to obtain coverage and adequate reimbursement by third-party payors;
- the cost and timing of marketing authorization or regulatory clearances;
- the cost of goods associated with our consumer products and drug product candidates; and
- the extent to which we acquire or invest in businesses, products and technologies, including entering into licensing or collaboration arrangements for product candidates, although we currently have no commitments or agreements to complete any such transactions.

We expect that our available funds following this offering will not be sufficient to enable us to seek marketing approval for our drug product candidate for individuals with nocturnal leg cramps or our other target indications. Accordingly, we will be required to obtain further funding through public or private equity offerings, debt financings, collaborations and licensing arrangements or other sources.

In addition, attempting to secure additional financing may divert our management from our day-to-day activities, which may adversely affect our ability to develop and commercialize our drug product candidates or consumer brand and products. In addition, we cannot guarantee that future financing will be available in sufficient amounts or on terms acceptable to us, if at all. If we are unable to raise additional capital when required or on acceptable terms, we may be required to:

- significantly delay, scale back or discontinue the development or commercialization of our drug product candidates or consumer products;
- seek corporate partners for our drug product candidates or consumer products at an earlier stage than otherwise would be desirable or on terms that are less favorable than might otherwise be available;
- relinquish or license on unfavorable terms, our rights to technologies or drug product candidates or consumer products that we otherwise would seek to develop or commercialize ourselves; or
- significantly curtail, or cease, operations.

**Raising additional capital may cause dilution to our stockholders, including purchasers of common stock in this offering, restrict our operations or require us to relinquish rights to our intellectual property or product candidates.**

Until such time, if ever, as we can generate substantial product revenue, we expect to finance our cash needs through a combination of equity offerings, debt financings, other third-party funding, marketing and distribution arrangements and other collaborations, strategic alliances and licensing arrangements. We do not have any committed external source of funds. In the event we need to seek additional funds we may raise additional capital through the sale of equity or convertible debt securities. In such an event, your ownership interest 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 shares. Debt financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends.

If we raise additional funds through collaborations, strategic alliances or marketing, distribution or licensing arrangements with third-parties, we may have to relinquish valuable rights to our intellectual property or future revenue streams. If we are unable to raise additional funds when needed, we may be required to delay, limit, reduce or terminate our product development or future commercialization efforts or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves.

**We have a limited operating history and no history of commercializing pharmaceutical or consumer products, which may make it difficult to evaluate the prospects for our future viability.**

We were formed in February 2014 and, as a result, have no meaningful operations upon which to evaluate our business. Our operations to date have been limited to financing and staffing our company, developing our intellectual property and developing our product candidates. We have not yet demonstrated an ability to successfully complete a large-scale, pivotal clinical trial, obtain marketing approval, manufacture a commercial scale product, or arrange for a third-party to do so on our behalf, or conduct sales and marketing activities necessary for successful product commercialization. Consequently, predictions about our future success or viability may not be as accurate as they could be if we had a longer operating history or a history of successfully developing and commercializing pharmaceutical products.

**Risks Related to Clinical Development and Regulatory Approval**

**We are heavily dependent on the successful development of drug product candidates based on our proprietary treatment, and we cannot be certain that any drug product candidate we develop will enter clinical trials, receive regulatory approval or be successfully commercialized.**

We currently have no drug products that are approved for commercial sale and may never successfully develop marketable drug products. We expect that a substantial portion of our efforts and expenditures over the next few years will be devoted to developing drug product candidates and, accordingly, our business depends heavily on the successful development, regulatory approval and subsequent commercialization of the drug product candidates we develop. To date, we have only tested our proprietary treatment as a dietary supplement product candidate in healthy normal volunteers to determine whether our formulation prevents or reduces muscle cramps produced by electrical stimulation. While we understand the physical properties of the TRP activators in our proprietary treatment and their interaction with the primary sensory neurons in the mouth, esophagus, and stomach, we do not know whether it is this interaction that produced the reduction in muscle cramps observed in our three controlled studies performed to date. We are currently studying the TRP activators of our proprietary treatment and believe the most rapid development path will be to pursue drug product candidates with a single purified TRP activator. However, we do not know which TRP activator is most efficacious in treating or preventing muscle cramps. Further, we have not yet developed a drug product candidate that includes a single purified TRP activator that has shown a statistically significant effect in reducing muscle cramps or spasms. If we are not able to develop drug product candidates that safely and effectively treat nocturnal leg cramps or severe neuromuscular

conditions, our future prospects may be limited, which may negatively impact the trading price of our common stock.

Any drug product candidates we develop will require additional clinical development, management of clinical, pre-clinical and manufacturing activities, regulatory approval in multiple jurisdictions, obtaining manufacturing supply, building of a commercial organization, substantial investment and significant marketing efforts before we generate any revenues from product sales. We are not permitted to market any drug product candidate in the United States until it receives regulatory approval from the FDA, or in any foreign countries until it receives the requisite approval from the regulatory authorities in such countries. We have not previously submitted a new drug application, or NDA, to the FDA or comparable applications to other regulatory authorities, and do not expect to be in a position to do so for the foreseeable future. We cannot be certain that any drug product candidates we develop will be successful in clinical trials or receive regulatory approval. Further, our drug product candidates may not receive regulatory approval even if they are successful in clinical trials, or be successfully commercialized even if we receive regulatory approval. If the markets for patients that we are targeting are not as significant as we estimate, we may not generate significant revenues from sales of such products, if approved.

We plan to seek regulatory approval to commercialize our drug product candidates in the United States, the European Union and in additional foreign countries. While the scope of regulatory approval is similar in other countries, to obtain separate regulatory approval in many other countries we must comply with numerous and varying regulatory requirements of such countries regarding safety and efficacy and governing, among other things, clinical trials and commercial sales, pricing and distribution of our product candidates, and we cannot predict success in these jurisdictions.

**Because our drug product candidates and consumer product are in early stages of development, there is a high risk of failure, and we may never succeed in developing marketable products or generating product revenue.**

Our early clinical studies of our proprietary treatment in reducing electrically induced muscle cramps are not necessarily predictive of the results of any proof-of-concept clinical studies we may conduct in nocturnal leg cramps, multiple sclerosis spasticity, cervical dystonia or SCI spasticity. The technique to electrically induce muscle cramps utilized in connection with our completed studies has not been widely studied and its usefulness in clinical trials has not been validated. For instance, we have noted that subjects experience muscle fatigue from the electrical stimulation, which increases the difficulty of interpreting the results from our clinical studies. As a result, we cannot be certain that our clinical studies performed to date are an accurate predictor of the efficacy of our proprietary treatment in preventing or reducing muscle cramps. If our proof-of-concept clinical studies do not successfully demonstrate potential efficacy of our proprietary treatment, or if we are not successful in developing drug product candidates that replicate the potential efficacy of our proprietary treatment, our ability to develop and commercialize our drug product candidates may be limited.

Our consumer product is still under development and may require significant effort to make it more palatable. If we are not successful in refining the product attributes of our consumer product, we may not be able to derive significant revenue following the launch of our consumer brand.

**Clinical development involves an expensive and time-consuming process with an uncertain outcome, and results of earlier studies and trials may not be predictive of future trial results.**

To date, we have completed three clinical studies of our proprietary treatment, and plan to conduct proof-of-concept studies of our proprietary treatment for nocturnal leg cramps in the near future. The FDA has indicated that products intended for the treatment of nocturnal leg cramps may be marketed as either dietary supplements or drugs. The FDA regulates products on the basis of their intended use, with products claiming to diagnose, cure, mitigate, treat, or prevent disease being regulated as drugs, and dietary

supplements being dietary ingredients intended for ingestion which are permitted to be the subject of claims about their effect on the structure or function of the body. While we eventually intend to develop drug products to treat nocturnal leg cramps, the studies of our proprietary treatment to date have not been, and our planned proof-of-concept study will not be, conducted pursuant to FDA's regulations governing the clinical testing of drugs. Rather, these studies have been, and will be, conducted pursuant to the requirements for the clinical testing of dietary supplements. We have not commenced or completed any clinical trials of any drug product candidates for any of our targeted indications and before we are able to begin clinical trials of drug product candidates in the United States, we will be required to submit an IND to the FDA. An IND requires the submission of manufacturing information, analytical data, the results of nonclinical trials, a proposed clinical trial protocol and other information, and the FDA's primary objective in reviewing an IND is to assure the safety of subjects. We have not completed any toxicology studies of any drug product candidates in assays and animals and there can be no guarantee that our drug product candidates can be safely administered to patients. In contrast, clinical studies of dietary supplements do not require the submission of an IND, although they do require approval of an institutional review board, or IRB, or ethics committee. Therefore, we plan to take advantage of the regulatory framework that permits clinical trials of dietary supplements without an IND for our proof-of-concept studies in individuals with nocturnal leg cramps, and if our proof-of-concept studies are successful, we plan to pursue any future development of our drug product candidates based on our proprietary treatment subject to the IND requirements. The FDA may not agree that studies performed without an IND, even if for GRAS substances in an indication that the FDA has stated is eligible for regulation as a dietary supplement on the basis of its claims, are adequate to support an IND for a disease indication. Further, the FDA may disagree with our strategy to elect to study our proprietary treatment for nocturnal leg cramps in clinical studies as a dietary supplement without an IND.

We plan to initiate at least one proof-of-concept study of our proprietary treatment for individuals with nocturnal leg cramps and may initiate one or more additional proof-of-concept studies of our proprietary treatment for multiple sclerosis spasticity, cervical dystonia or SCI spasticity. Our planned proof-of-concept studies and any future clinical trials may not begin on time, have an effective design, enroll a sufficient number of patients, or be completed on schedule, if at all. The FDA may place any IND or clinical trial that we propose on clinical hold, which would require that we resolve any concerns prior to being permitted to initiate or continue clinical development. The protocol for our proposed study in the United States has been accepted by an IRB and we will submit a protocol to a local ethics committee in each of the United Kingdom and Australia. However, in order to begin our proposed proof-of-concept studies, we may also need approval from the applicable regulatory agency in the jurisdiction where the study will take place. If these regulatory authorities do not approve our proof-of-concept studies for any reason, our ability to develop drug products based on our proprietary treatment may be limited.

In addition, human clinical trials are very expensive and difficult to design and implement, in part because they are subject to rigorous regulatory requirements. For instance, the FDA may not agree with our proposed endpoints for any clinical trial of our drug product candidates, which may delay the commencement of our drug clinical trials in the United States. The clinical trial process is also time consuming. We estimate that clinical trials of our drug candidates will take several years to complete, and their outcomes are inherently uncertain. Furthermore, failure can occur at any stage of the clinical trial process, and we could encounter problems that cause us to abandon or repeat clinical trials. Drug product candidates in later stages of clinical trials may fail to show the desired safety and efficacy traits despite having progressed through pre-clinical studies and initial clinical trials, and the results of pre-clinical studies and early clinical trials of our drug product candidates therefore may not be predictive of the results of later-stage clinical trials. A number of companies in the biopharmaceutical industry have suffered significant setbacks in advanced clinical trials due to lack of efficacy or adverse safety profiles, notwithstanding promising results in earlier trials.

The commencement and completion of clinical trials may be delayed for a variety of reasons, including:

- failure to obtain regulatory approval to commence a trial;
- failure to obtain independent IRB approval at each trial site;
- addition of new trial sites;
- unforeseen safety issues;
- determination of dosing issues;
- lack of effectiveness during later-stage clinical trials;
- inability to reach agreement on acceptable terms with prospective contract research organizations, or CROs, and clinical trial sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and trial sites;
- slower than expected rates of patient recruitment or failure to recruit suitable patients to participate in a trial;
- failure to manufacture sufficient quantities of a drug candidate for use in clinical trials;
- inability to monitor patients adequately during or after treatment, including failure to have patients complete a trial or return for post-treatment follow-up; and
- inability or unwillingness of clinical investigators to follow our clinical protocols.

Patient enrollment, a significant factor in the timing of clinical trials, is affected by many factors including the size and nature of the patient population, the proximity of patients to clinical sites, the eligibility criteria for the trial, the design of the clinical trial, competing clinical trials and clinicians' and patients' perceptions as to the potential advantages of the drug being studied in relation to other available therapies, including any new drugs that may be approved for the indications we are investigating. Furthermore, we intend to rely on CROs and clinical trial sites to ensure the proper and timely conduct of our clinical trials, and while we will have agreements governing their committed activities, we will have limited influence over their actual performance.

We, the FDA or other regulatory authorities, or the Data Safety Monitoring Board, or DSMB, for a clinical trial or the IRB or ethics committee of an institution in which a clinical trial is being conducted, may suspend or terminate our clinical trials at any time due to a number of factors, including, if it appears that we or our collaborators are failing to conduct a trial in accordance with regulatory requirements or our clinical protocol, inspection of the clinical trial operations or trial site by the FDA or other regulatory authorities resulting in the imposition of a clinical hold, unforeseen safety issues or adverse side effects, failure to demonstrate a benefit from using a drug, changes in governmental regulations or administrative actions or lack of adequate funding to continue the clinical trial. Therefore, we cannot predict with any certainty the schedule for commencement and completion of future clinical trials. If we experience delays in the commencement or completion of any of our clinical trials, or if we terminate a clinical trial prior to completion, the commercial prospects of our product candidates could be harmed, and our ability to generate revenues from the candidates may be delayed. In addition, any delays in our clinical trials could increase our costs, slow down the development and, in the case of our drug product candidates, the approval process, and jeopardize our ability to commence product sales and generate revenues. Any of these occurrences may harm our business, financial condition and results of operations. In addition, many of the factors that cause, or lead to, a delay in the commencement or completion of clinical trials may also ultimately lead to the denial of regulatory approval of our drug product candidates.

**The regulatory approval processes of the FDA and comparable foreign authorities are lengthy, time consuming and inherently unpredictable, and if we are ultimately unable to obtain regulatory approval for our drug product candidates, our business will be substantially harmed.**

Our drug product candidates will require regulatory approval by the FDA and comparable foreign authorities before we can market them. The time required to obtain approval by the FDA and comparable foreign authorities is unpredictable but typically takes many years following the commencement of clinical trials,

and depends upon numerous factors, including the substantial discretion of the regulatory authorities. In addition, approval policies, regulations, or the type and amount of clinical data necessary to gain approval may change during the course of a drug product candidate's clinical development and may vary among jurisdictions. We have not obtained regulatory approval for any drug product candidate, and it is possible that we may never obtain regulatory approval of any drug product candidate that we seek to develop in the future.

Obtaining approval of an NDA is an extensive, lengthy, expensive and inherently uncertain process, and the FDA or comparable foreign regulatory authorities may delay, limit or deny approval of our drug product candidates for many reasons, including:

- we may not be able to demonstrate that our drug product candidates are safe and effective as treatments for our targeted indications to the satisfaction of the FDA or comparable foreign regulatory authorities;
- the results of our clinical trials may not meet the level of statistical or clinical significance required by the FDA or comparable foreign regulatory authorities for marketing approval;
- the FDA or comparable foreign regulatory authorities may disagree with the number, design, size, conduct or implementation of our clinical trials;
- the CRO that we retain to conduct clinical studies and trials may take actions outside of our control that materially adversely impact our clinical studies and trials;
- the FDA or comparable foreign regulatory authorities may not find the data from pre-clinical and clinical studies sufficient to demonstrate that the clinical and other benefits of our drug product candidates outweigh their safety risks;
- the FDA or comparable foreign regulatory authorities may disagree with our interpretation of data from our pre-clinical and clinical studies or may require that we conduct additional studies;
- the data collected from clinical trials of our drug product candidates may not be sufficient to support the submission of an NDA or other submission or to obtain regulatory approval in the United States or elsewhere;
- the FDA or comparable foreign regulatory authorities may not accept data generated at our clinical trial sites;
- if our NDA is reviewed by an advisory committee, the advisory committee may recommend against approval of our application or may recommend that the FDA require, as a condition of approval, additional pre-clinical studies or clinical studies, limitations on approved labeling or distribution and use restrictions;
- the FDA may require development of a Risk Evaluation and Mitigation Strategy, or REMS, as a condition of approval;
- the FDA or comparable foreign regulatory authorities may identify deficiencies in the manufacturing processes or facilities of our third-party manufacturers with which we contract for clinical or commercial supplies; or
- the approval policies or regulations of the FDA or comparable foreign regulatory authorities may significantly change in a manner rendering our clinical data insufficient for approval.

In addition, even if we were to obtain approval, regulatory authorities may approve any of our drug product candidates for fewer or more limited indications than we request, may not approve the price we intend to charge for our products, may grant approval contingent on the performance of costly post-marketing clinical trials, or may approve a drug product candidate with a label that does not include the labeling claims necessary or desirable for the successful commercialization of that drug product candidate. Any of the foregoing scenarios could harm the commercial prospects for our drug product candidates.

**Our drug product candidates or consumer products may cause undesirable side effects or have other properties that could impact their market acceptance, or in the case of our drug product candidates, delay or prevent their regulatory approval or limit the scope of any approved label.**

Undesirable side effects caused by our drug product candidates could cause us, clinical trial sites or regulatory authorities to interrupt, delay or halt clinical trials and could result in the delay or denial of regulatory approval. None of the subjects in Flex-001, Flex-002 and Flex-003 reported any serious adverse events, or SAEs. However, there is no guarantee that subjects in our future clinical trials will not experience SAEs. For instance, capsaicin, one of the active ingredients in our proprietary treatment, is an irritant and produces a sensation of burning in tissue with which it comes into contact. Given orally, capsaicin can induce the effects associated with the ingestion of spicy food, including an increase of salivation and gastric secretion, warm to intolerable burning and gastrointestinal disorders depending on the dose. These or other side effects could affect subject recruitment or the ability of enrolled subjects to complete clinical trials or result in potential product liability claims. Any of these occurrences may harm our business, financial condition and prospects significantly.

Further, if any of our drug product candidates receives marketing approval or we begin marketing our consumer product, and we or others later identify undesirable side effects caused by such products, a number of potentially significant negative consequences could result, including:

- regulatory authorities may withdraw approval for the drug products or impose restrictions on their distribution in the form of a modified REMS;
- regulatory authorities may require additional labeling statements on the drug products such as warnings or contraindications;
- we may be required to create a medication guide for the drug products outlining the risks of such side effects for distribution to patients;
- we may be required to change the way the product is administered or conduct additional clinical studies;
- we could be sued and held liable for harm caused to individuals;
- we could elect to discontinue the sale of our consumer products; or
- our reputation may suffer.

Any of these events could prevent us from achieving or maintaining market acceptance of the affected drug product candidate, if approved, or consumer product, if marketed, and could substantially increase the costs of commercializing our product candidates.

**Even if we obtain regulatory approval for any of our drug product candidates, we will be subject to ongoing and extensive regulatory requirements and continued regulatory review, which may result in significant additional expense. Additionally, our drug product candidates, if approved, could be subject to labeling and other restrictions and market withdrawal and we may be subject to penalties if we fail to comply with regulatory requirements or experience unanticipated problems with our products.**

Any regulatory approvals that we receive for our drug product candidates may be subject to significant restrictions on the indicated uses for which the product may be marketed or impose ongoing requirements for potentially costly post-marketing testing, including Phase IV clinical trials, or post-market surveillance. Any drug product candidate we develop, if approved, will also be subject to ongoing and extensive FDA or comparable foreign regulatory authority requirements governing the labeling, packaging, storage, distribution, export, import, safety surveillance, advertising, promotion, record-keeping and reporting of safety and other post-market information. In the United States, the holder of an approved NDA is obligated to monitor and report adverse events and any failure of a product to meet the specifications in the NDA to the FDA. 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.

Advertising and promotional materials must comply with FDA regulations, in addition to other potentially applicable federal and state laws and regulations, and are subject to FDA review.

In addition, manufacturers of drug products and their facilities are subject to payment of user fees and periodic inspections by the FDA and other regulatory authorities for compliance with current good manufacturing practices, or cGMP. If we or a regulatory agency discover previously unknown problems with a product, such as adverse events of unanticipated severity or frequency, or problems with the facility where or the processes by which the product is manufactured, or if we or our third-party manufacturers fail to comply with regulatory requirements, a regulatory agency may:

- issue a warning letter 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 ongoing clinical trials;
- impose restrictions on the marketing and/or manufacturing of the product, withdraw the product from the market or require mandatory product recalls;
- refuse to approve pending applications or supplements to approved applications submitted by us;
- seize or detain product or refuse to permit the import or export of the product; or
- refuse to allow us to enter into supply contracts, including 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. The occurrence of any event or penalty described above may inhibit our ability to commercialize our products and generate revenue. In addition, regulatory policies may change and additional government regulations may be enacted that could prevent, limit or delay regulatory approval of our product candidates. 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, which would adversely affect our business, prospects and ability to achieve or sustain profitability.

#### **Risks Related to Our Reliance on Third-Parties**

**We rely on third-parties to conduct our clinical trials. If these third-parties do not successfully carry out their contractual duties or meet expected deadlines, we may not be able to market our consumer product or obtain marketing approval for or commercialize our drug product candidates and our business could be materially harmed.**

We rely upon third-party CROs to monitor and manage data for our clinical programs, including our proof-of-concept studies. We rely on these parties for execution of our clinical trials, and control only certain aspects of their activities. Nevertheless, we are responsible for ensuring that each of our studies is conducted in accordance with the applicable protocol, legal, regulatory and scientific standards and our reliance on the CROs does not relieve us of our regulatory responsibilities. We and our CROs are required to comply with FDA laws and regulations regarding current good clinical practices, or GCPs, which are also required by the Competent Authorities of the Member States of the European Economic Area, or EEA, and comparable foreign regulatory authorities in the form of International Conference on Harmonization, or ICH, guidelines for all of our drug product candidates in clinical development. Regulatory authorities enforce GCPs through periodic inspections of trial sponsors, principal investigators and trial sites. If we or any of our CROs fail to comply with applicable GCPs, the clinical data generated in our clinical trials may be deemed unreliable and the FDA or comparable foreign regulatory authorities may require us to perform additional clinical trials before approving our marketing applications. We cannot assure you that upon inspection by a given regulatory authority, such regulatory authority will determine that any of our clinical studies or trials comply with GCP regulations. In addition, our clinical trials must be conducted with product produced under cGMP regulations. While we have agreements governing activities of our CROs, we have limited influence over their actual performance. In addition, portions of the proof-of-concept studies of



our proprietary treatment are expected to be conducted outside of the United States, which will make it more difficult for us to monitor CROs and perform visits of our clinical trial sites and will force us to rely heavily on CROs to ensure the proper and timely conduct of our clinical trials and compliance with applicable regulations, including GCPs. Failure to comply with applicable regulations in the conduct of our clinical trials may require us to repeat clinical trials, which would delay the regulatory approval process.

Some of our CROs have an ability to terminate their respective agreements with us upon reasonable notice or if, among other reasons, we make a general assignment for the benefit of our creditors or if we are liquidated. If any of our relationships with these third-party CROs terminate, we may not be able to timely enter into arrangements with alternative CROs or to do so on commercially reasonable terms, if at all. In addition, our CROs are not our employees, and except for remedies available to us under our agreements with such CROs, we cannot control whether or not they devote sufficient time and resources to our clinical programs. If CROs do not successfully carry out their contractual duties or obligations or meet expected deadlines, if they need to be replaced or if the quality or accuracy of the clinical data they obtain is compromised due to the failure to adhere to our clinical protocols, regulatory requirements or for other reasons, our clinical trials may be extended, delayed or terminated and we may not be able to obtain regulatory approval for or successfully commercialize our drug product candidates. Consequently, our results of operations and the commercial prospects for our drug product candidates would be harmed, our costs could increase substantially and our ability to generate revenue could be delayed significantly.

Switching or adding additional CROs involves substantial cost and requires management time and focus. In addition, there is a natural transition period when a new CRO commences work. As a result, delays occur, which can materially impact our ability to meet our desired clinical development timelines. Though we carefully manage our relationships with our CROs, there can be no assurance that we will not encounter challenges or delays in the future or that these delays or challenges will not have a material adverse impact on our business, financial condition and prospects.

**We rely completely on third-parties to manufacture our supplies for our clinical studies and we intend to rely on third-parties to produce commercial supplies of any approved drug product candidate and our consumer products, if marketed. Our commercialization of any of our drug product candidates or consumer product could be stopped, delayed or made less profitable if those third-parties fail to comply with the regulatory requirements of the FDA, Competent Authorities of the Member States of the EEA or comparable regulatory authorities, fail to provide us with sufficient quantities of product or fail to do so at acceptable quality levels or prices.**

We do not currently have nor do we plan to acquire the infrastructure or capability internally to manufacture our consumer products or the clinical supplies of our proprietary treatment for our planned proof-of-concept studies, and we lack the resources and the capability to manufacture on a commercial scale. The facilities used by our contract manufacturers to manufacture our drug product candidates must be approved by the FDA pursuant to inspections that will be conducted after we submit an NDA to the FDA. While we will work closely with our third-party manufacturers on the manufacturing process for our drug product candidates, including by conducting quality audits, we generally will not control the manufacturing process of, and will be completely dependent on, our contract manufacturers or other third-party manufacturers for compliance with cGMP regulatory requirements and for manufacture of both active drug substances and finished drug products for our drug product candidates and dietary supplement cGMP regulatory requirements for our consumer product. If we were to experience an unexpected loss of supply of the TRP activators in our proprietary treatment or drug product candidates for any reason, whether as a result of manufacturing, supply or storage issues or otherwise, we could experience delays, disruptions, suspensions or terminations of, or be required to restart or repeat, our clinical trials. We have no control over the ability of our contract manufacturers or other third-party manufacturers to maintain adequate quality control, quality assurance and qualified personnel. If our contract manufacturers or other third-party manufacturers cannot successfully manufacture material that conforms to our specifications and the strict regulatory requirements of the FDA

or others, they will not be able to secure and/or maintain regulatory approval for their manufacturing facilities for the drug product candidates and may not be able to continue manufacturing the consumer products under development. If the FDA or a comparable foreign regulatory authority does not approve these facilities for the manufacture of our drug product candidates or if it withdraws any such approval in the future, or if these facilities are found not to be compliant with the regulatory requirements for the manufacture of drug products or dietary supplements, we may need to find alternative manufacturing facilities, which would significantly impact our ability to develop, obtain regulatory approval for or market our drug product candidates, if approved, and to market our consumer product.

We rely on our manufacturers to purchase from third-party suppliers the materials necessary to produce our proprietary treatment for our proof-of-concept clinical studies and our consumer products and expect to continue to rely on our manufacturers to purchase from third-parties the materials necessary to produce our products if and when they are commercially marketed. We do not have any control over the process or timing of the acquisition of these raw materials by our manufacturers. Moreover, we currently do not have any agreements for the commercial production of these raw materials. There may be only a limited number of these suppliers, and we cannot assure you that we will be successful in identifying and qualifying an acceptable supplier of the raw materials we require. Even if successful, the process of identifying and qualifying a replacement supplier or a contract manufacturer or other third-party manufacturer could cause a delay in the supply of a drug product candidate, or the raw material components thereof, for an ongoing clinical trial. Any such significant delay in supply could considerably delay completion of our clinical trials, product testing and potential regulatory approval of our drug product candidates. If our manufacturers or we are unable to purchase the raw materials we require after regulatory approval has been obtained for our drug product candidates, the commercial launch of our drug product candidates would be delayed or there would be a shortage in supply, which would impair our ability to generate revenue from the sale of our drug product candidates.

We have not completed the development work for our consumer products. There is no guarantee that once this development work has been completed, we will be able to identify suitable manufacturers for the commercial production of our consumer products or that we will be able to enter into agreements with these manufacturers on favorable terms. If we are not able to identify appropriate manufacturers or enter into reasonable agreements with such manufacturers, our ability to commercialize our consumer products will be limited, which could have a material adverse impact upon our business.

**We may not be successful in establishing development and commercialization collaborations, which failure could adversely affect, and potentially prohibit, our ability to develop our product candidates.**

Developing drug products, conducting clinical trials, obtaining marketing approval, establishing manufacturing capabilities and marketing approved products is expensive and, therefore, we anticipate exploring collaborations with third-parties that have more resources and experience than we do. In situations where we enter into a development and commercial collaboration arrangement for a drug product candidate, we may also seek to establish additional collaborations for development and commercialization in territories outside of those addressed by the first collaboration arrangement for such drug product candidate. If any of our drug product candidates receives marketing approval, we may enter into sales and marketing arrangements with third-parties with respect to otherwise unlicensed or unaddressed territories outside of the United States. There are a limited number of potential partners, and we expect to face competition in seeking appropriate partners. If we are unable to enter into any development and commercial collaborations and/or sales and marketing arrangements on reasonable and acceptable terms, if at all, we may be unable to successfully develop and seek regulatory approval for our product candidates and/or effectively market and sell future approved products, if any, in some or all of the territories outside of the United States where it may otherwise be valuable to do so.

Establishing manufacturing and distribution capabilities, and marketing and selling consumer products, is expensive and, therefore, we anticipate entering into collaborations with third-parties that have more

resources and experience than we do. In particular, we do not have, nor do we intend to hire, a large sales force to market consumer products under our consumer brand. Until we complete the development of our cornerstone consumer product, we may find it difficult to attract qualified partners. Even after the development of our cornerstone product is completed, we expect to face competition in seeking appropriate partners. If we are unable to enter into any development and commercial collaborations and/or sales and marketing arrangements on reasonable and acceptable terms, if at all, we may be unable to suitably manufacture our consumer products candidates and/or effectively market and sell our consumer products.

To the extent that we decide not to, or are unable to, enter into collaborative arrangements with respect to the sales and marketing of our proposed products, significant capital expenditures, management resources and time will be required to establish and develop an in-house marketing and sales force with the necessary technical expertise. We also cannot assure you that we will be able to establish or maintain effective in-house sales and distribution capabilities.

**We may not be successful in maintaining development and commercialization collaborations, and any partner may not devote sufficient resources to the development or commercialization of our product candidates or may otherwise fail in development or commercialization efforts.**

Even if we are able to establish collaboration arrangements with third-parties, any such collaboration may not ultimately be successful, which could have a negative impact on our business, results of operations, financial condition and growth prospects. If we partner with a third-party for development and commercialization of a product candidate, we can expect to relinquish some or all of the control over the future success of that product candidate to the third-party. It is possible that a partner may not devote sufficient resources to the development or commercialization of our product candidate or may otherwise fail in development or commercialization efforts, in which event the development and commercialization of such product candidate could be delayed or terminated and our business could be substantially harmed. In some cases, we may be responsible for continuing development of a product candidate or research program under a collaboration, and the payment we receive from our partner may be insufficient to cover the cost of this development. Moreover, collaborations and sales and marketing arrangements are complex and time consuming to negotiate, document and implement and they may require substantial resources to maintain. Even if we were successful in establishing a collaboration, conflicts may arise between us and our partners, such as conflicts concerning the interpretation of clinical data, the achievement of milestones, the interpretation of financial provisions or the ownership of intellectual property developed during the collaboration. If any such conflicts arise, a partner could act in its own self-interest, which may be adverse to our best interests. Any such disagreement between us and a partner could result in the delay or prevent the development or commercialization of our product candidates and, in turn could prevent us from generating sufficient revenue to achieve or maintain profitability.

**Our employees, independent contractors, principal investigators, CROs, consultants, commercial partners and vendors may engage in misconduct or other improper activities, including non-compliance with regulatory standards and requirements.**

We are exposed to the risk of fraud or other misconduct by employees and independent contractors, such as principal investigators, CROs, manufacturers, consultants, commercial partners and vendors. Misconduct by these parties could include the disclosure of unauthorized activities to us or intentional or negligent failures to comply with FDA regulations, to provide accurate information to the FDA, to comply with manufacturing standards, to comply with federal and state healthcare fraud and abuse laws, to report financial information or data accurately. In particular, sales, marketing and other business arrangements in the healthcare industry are subject to extensive laws intended to prevent fraud, kickbacks, self-dealing and other abusive practices. These laws may restrict or prohibit a wide range of business activities, including, but not limited to certain activities related to research, manufacturing, distribution, pricing, discounting, marketing and promotion, sales commission, customer incentive programs and other business arrangements. Misconduct by employees and other third-parties could also involve the improper use of individually identifiable

information, including, without limitation, information obtained in the course of clinical studies and trials. In addition, federal procurement laws impose substantial penalties for misconduct in connection with government contracts and require certain contractors to maintain a code of business ethics and conduct.

Prior to the consummation of this offering, we will adopt a code of business ethics and conduct, but it is not always possible to identify and deter misconduct by employees and other third-parties, and the precautions we take to detect and prevent improper activities may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to be in compliance with such laws or regulations. If any such actions are instituted against us, those actions could have a significant impact on our business, including the imposition of civil, criminal and administrative penalties, damages, monetary fines, disgorgement, possible exclusion from participation in Medicare, Medicaid and other federal healthcare programs, contractual damages, reputational harm, diminished profits and future earnings and curtailment or restructuring of our operations, any of which could adversely affect our ability to operate.

#### **Risks Related to Commercialization of Our Drug Product Candidates and Consumer Brand and Products**

**We are subject to uncertainty relating to third-party payor coverage and reimbursement policies which, if not favorable to our drug candidates, could hinder or prevent our products' commercial success.**

Our ability to commercialize our drug candidates successfully will depend in part on the extent to which governmental authorities, private health insurers and other third-party payors establish appropriate coverage and reimbursement levels for our drug candidates and related treatments. As a threshold for coverage and reimbursement, third-party payors generally require that drug products be approved for marketing by the FDA. A trend in the U.S. healthcare industry and elsewhere is cost containment. Governmental authorities and other third-party payors have attempted to control costs by limiting coverage and the amount of reimbursement for particular medical products. Third-party payors also are increasingly challenging the effectiveness of and prices charged for medical products and services. Therefore, as a result of these cost containment measures, coverage and reimbursement may not be available for any drug product that we commercialize and, even if these are available, the level of reimbursement may not be satisfactory. We do not expect any third-party payors to cover and reimburse for our consumer products.

In the United States, private third-party payors often rely upon Medicare coverage policy and payment limitations in setting their own reimbursement policies. However, no uniform policy requirement for coverage and reimbursement for drug products exists among third-party payors. Therefore, coverage and reimbursement can differ significantly from payor to payor. As a result, the coverage determination process is often a time-consuming and costly process that will require us to provide scientific and clinical support for the use of our products to each payor separately, with no assurance that coverage and adequate reimbursement will be applied consistently or obtained at all. Our inability to promptly obtain coverage and adequate reimbursement rates from both government-funded and private payors for any approved products that we develop could significantly harm our operating results, our ability to raise capital needed to commercialize our product candidates and our overall financial condition.

**Complying with new and existing government regulations for our consumer product, both in the United States and abroad, could significantly increase our costs or delay or prevent the development or potential commercialization of our consumer brand.**

The processing, formulation, packaging, labeling, advertising, distribution and sale of our consumer products is subject to regulation by several U.S. federal agencies, including the FDA, the Federal Trade Commission, or the FTC, the Postal Service, the Consumer Product Safety Commission, the Department of Agriculture and the Environmental Protection Agency, as well as various state, local and foreign laws and agencies of the localities in which our products are sold. Government regulations may prevent or delay the introduction or require the reformulation of our products.

We believe our consumer products for the prevention of EAMC will be regulated as dietary supplements by the FDA, which we believe is an appropriate marketing claim for a dietary supplement and not a disease claim that would render the product subject to regulation as a drug. The FDA regulates, among other things, the manufacture, composition, safety, packaging, labeling, marketing, advertising and distribution of dietary supplements (including vitamins, minerals, herbs, and other dietary ingredients for human use). The FDA may determine that a particular dietary supplement or ingredient that we may market presents an unacceptable health risk. If that occurs, we could be required to cease distribution of and/or recall dietary supplements containing that ingredient.

The FDA or FTC may also determine that certain labeling, advertising and promotional claims, statements or activities with respect to a dietary supplement are not in compliance with applicable laws and regulations and may determine that a particular statement is an unapproved health claim, a drug claim, a false or misleading claim, or a deceptive advertising claim. Any such determination or any other failure to comply with FDA or other regulatory requirements could prevent us from marketing our consumer product as a dietary supplement and subject us to administrative, civil or criminal penalties.

The Food Safety Modernization Act, or FSMA, now requires food companies, including dietary supplement companies, to register with the FDA biennially. The FSMA permits summary suspension of registrations (and elimination of the right to sell products in interstate commerce) based on findings by the FDA that a product might present an unreasonable risk of serious illness, injury or death. In addition, legislation has been introduced in the U.S. Senate which seeks to provide the FDA with increased authority to regulate dietary supplements and to increase labeling requirements with respect to dietary supplements. Other legislation introduced but not passed by Congress would require the FDA Commissioner to obtain a list of all ingredients and claims for dietary supplements and distinguish from among them which products are potentially unsafe and which claims are misleading. FDA and FTC are also cooperating in joint enforcement projects, including the issuance of warning and enforcement letters by both agencies.

The FTC exercises jurisdiction over the advertising of dietary supplements and has instituted numerous enforcement actions against dietary supplement companies for failing to have adequate substantiation for claims made in advertising or for using false or misleading advertising claims. The FTC routinely polices the market for deceptive dietary supplement advertising and accepts and reviews complaints from the public concerning such advertising.

In Europe, non-compliance by us or others of relevant legislation can result in regulators bringing administrative or, in some cases, criminal proceedings. European Union regulations and directives are implemented and enforced by individual member states and, so, enforcement priorities and applicable law can occur in multiple countries at one time. Failure by us, the manufacturers or suppliers to comply with applicable legislation could result in prosecution and have a material adverse effect on our business, financial condition and results of operations.

Europe has adopted broad regulations and directives on health and nutrition claims. These regulations cover claims that can be made for foods, including dietary supplements, and certain claims may be prohibited or require prior approval. Unless subject to derogation, products that include certain claims cannot be lawfully marketed in EU member states absent preapproval.

In addition, an EU Directive (Directive 2001/95/EC as amended) governing product safety requires manufacturers to notify regulators about unsafe products and gives regulators in each member state the power to order product recalls. As a result, the number of product recalls in Europe has increased substantially. A product recall in Europe could have a material adverse effect on our business, financial condition and results of operations.

**Our commercial success depends upon attaining significant market acceptance of our drug product candidates, if approved, among physicians, healthcare payors, patients and the medical community.**

Even if we obtain regulatory approval for any drug product candidate, the product may not gain market acceptance among physicians, healthcare payors, patients and the medical community, which is critical to commercial success. Market acceptance of any drug product candidate for which we receive approval depends on a number of other factors, including:

- the efficacy and safety as demonstrated in clinical trials;
- the timing of market introduction of the drug product candidate as well as competitive products;
- the clinical indications for which the drug product candidate is approved;
- acceptance by physicians, the medical community and patients of the drug product candidate as a safe and effective treatment;
- the convenience of prescribing and initiating patients on the drug product candidate;
- the potential and perceived advantages of such drug product candidate over alternative treatments;
- the cost of treatment in relation to alternative treatments, including any similar generic treatments;
- the availability of coverage and adequate reimbursement and pricing by third-party payors including government authorities;
- relative convenience and ease of administration;
- the prevalence and severity of adverse side effects; and
- the effectiveness of sales and marketing efforts.

Many drug products approved for treatment of a particular disease are not effective in treating all patients suffering from a disease and there is no guarantee that our drug product candidates, if approved, will be effective in treating all patients. In the clinical studies of our proprietary treatment performed to date, 49% of subjects tested produced results that were inconclusive or showed our proprietary treatment did not reduce the subject's electrically induced muscle cramps. Our drug product candidates will be based on the same TRP activators found in our proprietary treatment. If the results in future clinical trials of our drug product candidates produce the same results as the results from the studies of our consumer products, physicians, healthcare payors, patients and the medical community may not accept our drug product candidates as treatment options. If our drug product candidates are approved but fail to achieve an adequate level of acceptance by physicians, healthcare payors, patients and the medical community, we will not be able to generate significant revenue, and we may not become or remain profitable.

**We may incur product liability claims, which could increase our costs and/or materially adversely affect our business, reputation, financial condition or results of operations.**

The testing and marketing of drug products and consumer products entail an inherent risk of product liability. If we cannot successfully defend ourselves against product liability claims, we may incur substantial liabilities or be required to limit commercialization of our products. Retailers and formulators of products designed for human consumption may be subject to product liability claims if the use of their products is alleged to have resulted in illness or injury or if their products include inadequate instructions or warnings. As a dietary supplement that does not contain new dietary ingredients, our consumer products will not be subject to pre-market regulatory approval or review in the United States by the FDA or other governmental authorities. Our consumer products could contain spoiled or contaminated substances, and some of our products may contain ingredients that do not have long histories of human consumption. We could be subject to product liability claims, including among others, that our products include insufficient instructions for use or inadequate warnings concerning possible side effects or interactions with other substances. Any product liability claim against us could result in increased costs and adversely affect our reputation with our customers, which in turn could materially adversely affect our business, financial condition or results of operations.

**Insurance coverage, even where available, may not be sufficient to cover losses we may incur, which could increase our costs and lower our profits.**

Our business exposes us to the risk of liabilities arising out of our products and operations. For example, we may be liable for claims brought by users of our products or by employees, customers or other third-parties for personal injury or property damage occurring in the course of our operations. We will seek to minimize these risks through various insurance policies from third-party insurance carriers. Currently, we have only limited product liability insurance coverage and the insurance industry has become more selective in offering certain types of insurance, including product liability, product recall and property casualty insurance. There can be no assurance that we will be able to obtain or maintain such coverage or obtain comparable coverage on terms and conditions favorable to us, if at all. Further, we anticipate that any additional insurance coverage we may obtain will be subject to large individual claim deductibles, individual claim and aggregate policy limits and other terms and conditions. We cannot assure you that our insurance will be sufficient to cover our losses. Any losses that are not completely covered by our insurance could have a material adverse effect on our business, financial condition or results of operations, including preventing or limiting the commercialization of drug products and consumer products we develop, alone or with collaborators.

**Unfavorable publicity or consumer acceptance of our consumer product or of dietary supplements, generally, could reduce our sales.**

We expect to be dependent upon consumer acceptance of the safety, efficacy and quality of our products. Consumer acceptance of products can be significantly influenced by scientific research or findings, national media attention and other publicity about product use. A product may initially be received favorably, resulting in high sales associated with that product that may not be sustainable as consumer preferences change. Alternatively, skepticism of claims made by companies in the dietary supplement industry may limit the number of individuals that believe our consumer products are effective in preventing muscle cramps, which may negatively our ability to generate significant sales from our consumer products.

For instance, many consumers currently believe that hydration, stretching and sports drinks are sufficient to prevent EAMC. To successfully market our consumer product, we will need to convince consumers that these treatments, alone, are insufficient in relieving or preventing muscle cramps. Changing consumer behavior patterns may take months or years to accomplish and there is no guarantee that we will be successful in doing so. Furthermore, our proprietary treatment has been shown only to relieve the intensity of muscle cramps if taken prior to the individuals' experiencing a muscle cramp. We do not know if our consumer products will be effective in relieving a muscle cramp that has already begun and, as a result, consumers may need to take our consumer products in advance of activities where they believe a muscle cramp is likely to occur. There is no guarantee that consumers will be willing to use our consumer products as a preventative measure. If consumers are not willing to purchase our products as a preventative measure, our ability to generate significant revenue from the sale of our consumer product may be limited.

Scientific research or publicity could be unfavorable to the dietary supplement industry or any of our particular products. Any research or publicity that is perceived by our consumers as less than favorable or that questions earlier favorable research or publicity could have a material adverse effect on our ability to generate revenue. Adverse publicity in the form of published scientific research, statements by regulatory authorities or otherwise, whether or not accurate, that associates consumption of our products or any other similar products with illness or other adverse events, or that questions the benefits of our or similar products, or that claims that such products are ineffective could have a material adverse effect on our business, reputation, financial condition or results of operations.

**If our drug product candidates are not shown to be more effective in relieving muscle cramps than our consumer product, then the market for our drug product candidates may be limited.**

Both our consumer products and drug product candidates will include the same TRP activators found in our proprietary treatment. We expect to formulate our consumer products to address the needs of athletes and to formulate our drug product candidates to address the needs of individuals suffering from nocturnal leg cramps and severe neuromuscular disorders. As a dietary supplement, we intend to market our consumer products only to athletes suffering from EAMC and not individuals suffering from a disease. However, if our drug product candidates are not shown to be more effective than our consumer products in preventing muscle cramps, or patients or physicians believe our consumer products are just as effective as any approved drug product candidates, individuals suffering from nocturnal leg cramps or severe neuromuscular diseases may elect to use our consumer products rather than our drug product candidates, if approved, which may limit the market for our drug products candidates.

**If we experience product recalls, we may incur significant and unexpected costs and damage to our reputation which in turn could have a material adverse effect on our business, financial condition or results of operations.**

We may be subject to product recalls, withdrawals or seizures if any of the products we sell are believed to cause injury or illness or if we are alleged to have violated governmental regulations in the labeling, promotion, sale or distribution of our products. A recall, withdrawal or seizure of any of our products could materially and adversely affect consumer confidence in our brands and lead to decreased demand for our products. In addition, a recall, withdrawal or seizure of any of our products would require significant management attention, would likely result in substantial and unexpected expenditures and could materially adversely affect our business, financial condition or results of operations.

**Recently enacted and future legislation may increase the difficulty and cost for us to commercialize our drug product candidates and affect the prices we may obtain.**

The United States and some foreign jurisdictions are considering, or have enacted, a number of legislative and regulatory proposals to change the healthcare system in ways that could affect our ability to sell our drug product candidates profitably, if they are approved for sale. Among policy makers and payors in the United States and elsewhere, there is significant interest in promoting changes in healthcare systems with the stated goals of containing healthcare costs, improving quality and/or expanding access. In the United States, the pharmaceutical industry has been a particular focus of these efforts and has been significantly affected by major legislative initiatives.

In March 2010, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act of 2010, or, collectively, the ACA, was enacted, which includes measures that have or will significantly change the way healthcare is financed by both governmental and private insurers. Among the ACA provisions of importance to the pharmaceutical industry are the following:

- an annual, non-deductible fee on any entity that manufactures or imports certain branded prescription drugs and biologic agents, apportioned among these entities according to their market share in certain government healthcare programs;
- an increase in the rebates a manufacturer must pay under the Medicaid Drug Rebate Program to 23.1% and 13.0% of the average manufacturer price for branded and generic drugs, respectively;
- a new Medicare Part D coverage gap discount program, in which manufacturers must agree to offer 50.0% point-of-sale discounts to negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for the manufacturer's outpatient drugs to be covered under Medicare Part D;
- extension of manufacturers' Medicaid rebate liability to covered drugs dispensed to individuals who are enrolled in Medicaid managed care organizations;



- expansion of eligibility criteria for Medicaid programs by, among other things, allowing states to offer Medicaid coverage to additional individuals and by adding new mandatory eligibility categories for certain individuals with income at or below 133.0% of the Federal Poverty Level, thereby potentially increasing manufacturers' Medicaid rebate liability;
- expansion of the entities eligible for discounts under the Public Health Service pharmaceutical pricing program;
- new requirements under the federal Open Payments program, created under Section 6002 of ACA and its implementing regulations that certain manufacturers of drugs, devices, biologics and medical supplies for which payment is available under Medicare, Medicaid or the Children's Health Insurance Program (with certain exceptions) report annually to HHS information related to "payments or other transfers of value" made or distributed to physicians (defined to include doctors, dentists, optometrists, podiatrists and chiropractors) and teaching hospitals and that applicable manufacturers and applicable group purchasing organizations report annually to HHS ownership and investment interests held by physicians (as defined above) and their immediate family members, with data collection currently required and reporting to the Centers for Medicare & Medicaid Services required by the 90th day of each calendar year;
- a new requirement to annually report drug samples that manufacturers and distributors provide to physicians;
- expansion of healthcare fraud and abuse laws, including the federal civil False Claims Act and the Anti-Kickback Statute, new government investigative powers, and enhanced penalties for non-compliance;
- a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research;
- creation of the Independent Payment Advisory Board, which has authority to recommend certain changes to the Medicare program that could result in reduced payments for prescription drugs and those recommendations could have the effect of law even if Congress does not act on the recommendations; and
- establishment of a Center for Medicare Innovation at the Centers for Medicare & Medicaid Services to test innovative payment and service delivery models to lower Medicare and Medicaid spending, potentially including prescription drug spending.

In addition, other legislative changes have been proposed and adopted since ACA was enacted. In August 2011, the President signed into law the Budget Control Act of 2011, which, among other things, created the Joint Select Committee on Deficit Reduction to recommend proposals in spending reductions to Congress. The Joint Select Committee on Deficit Reduction did not achieve its targeted deficit reduction of at least \$1.2 trillion for the years 2013 through 2021, triggering the legislation's automatic reductions to several government programs. These reductions include aggregate reductions to Medicare payments to providers of up to 2% per fiscal year, which went into effect in April 2013 and will remain in effect through 2024 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, reduced Medicare payments to several providers 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 adverse effect on our customers and accordingly, our financial operations. Further, under the recently enacted Drug Quality and Security Act, drug manufacturers will be subject to product identification, tracing and verification requirements, among other requirements, that are designed to improve the detection and removal of counterfeit, stolen, contaminated or otherwise potentially harmful drugs from the U.S. drug supply chain. These requirements will be phased in over several years and compliance with this new law will likely increase the costs of the manufacture and distribution of drug products, which could have an adverse effect on our financial condition.

We expect that the ACA, as well as other healthcare reform measures or may be adopted in the future, may, among other things, result in more rigorous coverage criteria and in additional downward pressure on the price that we receive for any approved product. Any reduction in reimbursement from Medicare or other government programs may result in a similar reduction in payments from private payors. The implementation of cost containment measures or other healthcare reforms may prevent us from being able to generate revenue, attain profitability or commercialize our product candidates.

**We may be subject, directly or indirectly, to federal and state healthcare fraud and abuse and false claims laws and regulations. Prosecutions under such laws have increased in recent years and we may become subject to such litigation. If we are unable to comply, or have not fully complied, with such laws, we could face substantial penalties.**

Our operations are, and will continue to be, directly, and indirectly, through our customers, subject to various state and federal fraud and abuse laws, including, without limitation, the federal Anti-Kickback Statute and federal False Claims Act. These laws may impact, among other things, our proposed sales, marketing and education programs.

The federal Anti-Kickback Statute prohibits persons and entities from knowingly and willingly soliciting, offering, receiving or providing remuneration, directly or indirectly, in cash or in kind, in exchange for or to induce either the referral of an individual, or the furnishing or arranging for a good or service, for which payment may be made under a federal healthcare program such as the Medicare and Medicaid programs. The Anti-Kickback Statute is broad and, despite a series of narrow statutory exceptions and regulatory safe harbors, prohibits many arrangements and practices that are lawful in businesses outside of the healthcare industry.

The federal False Claims Act prohibits persons and entities from among other things, knowingly presenting, or causing to be presented, claims for payments that are false or fraudulent or making or using a false record or statements, to obtain payment from the federal government. Suits filed under the civil False Claims Act, can be brought by any individual on behalf of the government, known as "qui tam" actions, and such individuals, commonly known as "whistleblowers," may share in any amounts paid by the entity to the government in fines or settlement. The frequency of filing qui tam actions has increased significantly in recent years, causing greater numbers of pharmaceutical, medical device and other healthcare companies to have to defend a civil False Claims Act action. When an entity is determined to have violated the civil False Claims Act, it may be required to pay up to three times the actual damages sustained by the government, plus civil penalties for each separate false claim.

The federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, created new federal criminal statutes that prohibit knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program or obtain, by means of false or fraudulent pretenses, representations or promises, any of the money or property owned by, or under the custody or control of, any healthcare benefit program, regardless of whether the payor is public or private, knowingly and willfully embezzling or stealing from a health care benefit program, willfully obstructing a criminal investigation of a health care offense and knowingly and willfully falsifying, concealing or covering up by any trick or device a material fact or making any materially false statements in connection with the delivery of, or payment for, healthcare benefits, items or services relating to healthcare matters.

The recently enacted ACA, among other things, amends the intent requirement of the federal Anti-Kickback Statute and certain criminal healthcare fraud statutes so that a person or entity no longer needs to have actual knowledge of this statute or specific intent to violate it to have committed a violation. In addition, the ACA provides that 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 civil False Claims Act.

HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act of 2009, or HITECH, and their respective implementing regulations, also impose obligations on covered entities, including healthcare providers, health plans and healthcare clearinghouses, as well as their respective business associates that create, receive, maintain or transmit individually identifiable health information for or on behalf of a covered entity, with respect to safeguarding the privacy, security and transmission of individually identifiable health information.

The federal Open Payments program, created under the ACA, and its implementing regulations, impose new annual reporting requirements for certain manufacturers of drugs, devices, biologicals and medical supplies for which payment is available under Medicare, Medicaid or the Children's Health Insurance Program (with certain exceptions) to annually report certain payments and transfers of value provided to physicians and teaching hospitals, or to entities or individuals at the request of, or designated on behalf of, the physicians and teaching hospitals, and to report annually certain ownership and investment interests held by physicians and their immediate family members.

Additionally, many states have laws comparable to those described above, which may be broader in scope and apply regardless of payor.

We are unable to predict whether we could be subject to actions under any of these or other fraud and abuse laws, or the impact of such actions. If we are found to be in violation of any of the laws described above and other applicable state and federal fraud and abuse laws, we may be subject to penalties, including civil and criminal penalties, damages, fines, exclusion from government healthcare reimbursement programs and the curtailment or restructuring of our operations, all of which could have a material adverse effect on our business and results of operations.

**If we cannot compete successfully for market share against other pharmaceutical companies, dietary supplement companies, and consumer brand companies, we may not achieve sufficient product revenue and our business will suffer.**

We will compete against fully integrated pharmaceutical companies and smaller companies that are collaborating with larger pharmaceutical companies, academic institutions, government agencies and other public and private research organizations. Many of these competitors, either alone or together with their collaborative partners, operate larger research and development programs or have substantially greater financial resources than we do, as well as significantly greater experience in:

- developing drugs;
- undertaking pre-clinical testing and clinical trials;
- obtaining FDA and other regulatory approvals of drugs;
- formulating and manufacturing drugs; and
- launching, marketing and selling drugs.

Competition may increase further as a result of advances in the commercial applicability of technologies and greater availability of capital for investment in these industries. Our competitors may succeed in developing, acquiring or licensing on an exclusive basis, products that are more effective or less costly than any of our current or future product candidates, or achieve earlier patent protection, marketing approval, product commercialization and market penetration than us. Additionally, technologies developed by our competitors may render some of our current or future product candidates uneconomical or obsolete, and we may not be successful in marketing our products against competitors. If we are unable to compete successfully with these and other potential future competitors, we may be unable to grow and sustain our revenue.

In addition, our consumer products will compete against larger companies developing and marketing dietary supplement and consumer products. We believe the principal elements of competition in the consumer product industry are price, selection, brand recognition, distribution channel offerings and the effectiveness

of the product. In addition, if our consumer product gains market acceptance, we are likely to experience increased competition for those products as more participants enter the market. Certain of our competitors are larger than us and have longer operating histories, larger customer bases, greater brand recognition and greater resources for marketing, advertising and product promotion. They may be able to secure inventory from vendors on more favorable terms, operate with a lower cost structure or adopt more aggressive pricing policies. Our competitors may also be more effective and efficient in introducing new products. We may not be able to compete effectively, and our attempt to do so may require us to increase marketing and/or reduce our prices, which may result in lower margins. Failure to effectively compete could materially adversely affect our market share, financial condition and growth prospects.

### **Risks Related to Our Business Operations and Industry**

#### **Our future success depends on our ability to retain key executives and to attract, retain motivate qualified personnel.**

Our future success depends on our ability to retain our founders and to attract, retain and motivate qualified personnel. We are highly dependent on Christoph Westphal, our President, Chief Executive Officer and Chairman, as well as the other principal members of our management and scientific teams, including our scientific co-founders, Bruce Bean, Ph.D. and Roderick MacKinnon, M.D. Although we have an employment agreement with Dr. Westphal, such agreement does not prevent him from terminating his employment with us at any time. We do not maintain "key person" insurance for any of our executives or other employees. The loss of the services of any of these persons could impede the achievement of our research, development and commercialization objectives.

#### **We will need to grow the size of our organization, and we may experience difficulties in managing this growth.**

As of October 1, 2014, we had 11 full-time employees and one part-time employee. As our development and commercialization plans and strategies develop, we expect to need additional research and development, managerial, operational, sales, marketing, financial and other resources. Future growth would impose significant added responsibilities on members of management, including:

- managing our clinical trials effectively;
- preparing for and executing on the launch of our consumer brand;
- identifying, recruiting, maintaining, motivating and integrating additional employees;
- managing our internal development efforts effectively while complying with our contractual obligations to other third-parties;
- improving our managerial, development, operational and finance systems; and
- developing our compliance infrastructure and processes to ensure compliance with complex regulations and industry standards regarding us and our product candidates.

As our operations expand, we expect that we will need to manage additional relationships with various strategic partners, suppliers and other third-parties. Our future financial performance and our ability to commercialize our product candidates and to compete effectively will depend, in part, on our ability to manage any future growth effectively. To that end, we must be able to manage our development efforts and clinical studies and trials effectively and hire, train and integrate additional management, administrative and sales and marketing personnel. We may not be able to accomplish these tasks, and our failure to accomplish any of them could prevent us from successfully growing our company.

#### **If we fail to develop, acquire or in-license other product candidates or products, our business and prospects will be limited.**

Our long-term growth strategy is to develop, acquire or in-license and commercialize a portfolio of product candidates. We do not have internal new drug discovery capabilities. As a result, our primary means of

expanding our pipeline of product candidates is to select and acquire or in-license product candidates for the treatment of therapeutic indications that complement or augment our current target indications, or that otherwise fit into our development or strategic plans on terms that are acceptable to us. Developing new formulations of existing products or identifying, selecting and acquiring or licensing promising product candidates requires substantial technical, financial and human resources expertise. Efforts to do so may not result in the actual development, acquisition or license of a particular product candidate, potentially resulting in a diversion of our management's time and the expenditure of our resources with no resulting benefit. If we are unable to add additional product candidates to our pipeline, our long-term business and prospects may be limited.

## Risks Related to Intellectual Property

### **Our proprietary rights may not adequately protect our intellectual property and potential products, and if we cannot obtain or maintain adequate protection of our intellectual property rights, we may not be able to successfully market our potential products.**

Our commercial success will depend in part on obtaining and maintaining intellectual property protection for our products, formulations, processes, methods and other technologies. We will only be able to protect these technologies and products from unauthorized use by third-parties to the extent they are covered by valid and enforceable intellectual property rights, including patents, or other market exclusionary rights apply.

We have applied for patent protection in the United States and in some, but not all, foreign countries, including claims directed at mechanisms and methods relating to our product candidates and formulations. Any changes we make to our formulations, however, may not be covered by our existing patent applications, and we may be required to file new applications or seek other forms of protection as a result. In addition, none of the active ingredients in our proprietary treatment can be protected by a patent covering its chemical composition of matter since each ingredient has long been in the public domain. Consequently, we will rely on method of use and formulation patent protection for our proprietary treatment, and will rely on this patent protection for any drug product candidates and consumer products we develop, which may not provide the same level of protection as composition of matter patent protection. In countries where we have not and do not seek patent protection, third-parties may be able to manufacture and sell our products without our permission, and we may not be able to stop them from doing so.

The patent positions of biopharmaceutical companies, like ours, can be highly uncertain and involve complex legal and factual questions for which important legal principles remain unresolved. No consistent policy has emerged in the United States regarding the breadth of claims allowed in patents covering the technology in the pharmaceutical field. The general environment for pharmaceutical patents outside the United States also involves significant uncertainty. Accordingly, we cannot predict the breadth of claims that may ultimately issue on our patent applications, or that the scope of these patent rights will provide a degree of protection on our product candidates and future products and technology sufficient to permit us to gain or maintain our competitive advantage with respect to these products and technology. For example, we cannot predict:

- the degree and range of protection any patents will afford us against competitors, including whether third-parties will find ways to design around our patent claims and make, use, sell, offer to sell or import competitive products without infringing our patents;
- if and when patents will issue;
- whether others will obtain patents claiming inventions similar to those covered by our patents and patent applications; or
- whether we will need to initiate litigation or administrative proceedings in connection with patent rights, which may be costly regardless of whether we win or lose.

In addition, others may independently develop similar or alternative products and technologies that may be outside the scope of our intellectual property. For example, a third-party may develop a competitive product that provides therapeutic benefits similar to those of one or more of our product candidates but that has a different composition that falls outside the scope of our patent protection. Furthermore, others may have invented technology claimed by our patents before we did so, and they may have filed patents claiming such technology before we did so, which would weaken our ability to obtain and maintain adequate patent protection for such technology. Should third-parties obtain patent rights to similar products or technology, this may have an adverse effect on our business.

If we or our current licensors or licensees, or any future licensors or licensees, fail to adequately prosecute, maintain and enforce patent protection for our product candidates, our ability to develop and commercialize those product candidates could be harmed and we might not be able to prevent competitors from making, using and selling competing products. Further, the U.S. Patent and Trademark Office, or USPTO, and various foreign patent agencies require compliance with a number of procedural, documentary, fee payment and other provisions to maintain patent applications and issued patents. Noncompliance with these requirements can result in abandonment or lapse of a patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. Losing our patent rights could enable competitors to enter the market earlier than would otherwise have been the case. Any such failure to properly protect the intellectual property rights relating to our product candidates could harm our business, financial condition and operating results.

**If we are unable to prevent disclosure of our trade secrets or other confidential information to third-parties, or to ensure that all inventions are assigned to us, our competitive position may be impaired.**

In addition to patents, we may also rely on trade secrets to protect our technology, especially where we do not believe patent protection is appropriate or obtainable. Trade secrets, however, are difficult to protect. We seek to protect this information, in part, through the use of non-disclosure and confidentiality agreements with employees, consultants, advisors and others. While we believe that we use reasonable efforts to protect our trade secrets, our own or our strategic partners' employees, consultants, contractors or advisors may unintentionally or willfully disclose our information to competitors. In addition, we cannot be certain that we have executed such agreements with all parties who may have contributed to our intellectual property or who had access to our proprietary information, nor can we be certain that our agreements with such parties will not be breached. These agreements may not effectively prevent disclosure of confidential and proprietary information and may not provide an adequate remedy in the event of unauthorized use or disclosure of confidential and proprietary information. We cannot guarantee that our trade secrets and other confidential proprietary information will not be publicly disclosed or that competitors will not otherwise gain access to our trade secrets or independently develop substantially equivalent information and techniques. The failure to obtain or maintain trade secret protection could adversely affect our competitive business position.

In addition, to the extent that consultants or key employees apply technological information independently developed by them or by others to our potential products, disputes may arise as to the proprietary rights in such information, which may not be resolved in our favor. Consultants and key employees that work with our confidential and proprietary technologies are required to assign all intellectual property rights in their discoveries to us. However, these consultants or key employees may terminate their relationship with us, and we cannot preclude them indefinitely from dealing with our competitors. If our trade secrets become known to competitors with greater experience and financial resources, the competitors may copy or use our trade secrets and other proprietary information in the advancement of their products, methods or technologies. If we were to prosecute a claim that a third-party had illegally obtained and was using our trade secrets, it could be expensive and time consuming and the outcome could be unpredictable. In addition, courts outside the United States are sometimes less willing to protect trade secrets than courts in the United States. Moreover, if our competitors independently develop equivalent knowledge, we would lack

any contractual or other legal claim to prevent them from using such information, and our business could be harmed.

**Third-parties may claim that we or our employees have misappropriated the intellectual property of a third-party, including know-how or trade secrets, or may claim ownership of what we regard as our own intellectual property.**

Many of our employees, consultants and contractors were previously employed at or engaged by other biotechnology or pharmaceutical companies, including our competitors or potential competitors. Some of these employees, consultants and contractors, executed proprietary rights, non-disclosure and non-competition agreements in connection with such previous employment. Although we try to ensure that our employees, consultants and contractors do not use the intellectual property, proprietary information, know-how or trade secrets of others in their work for us, we may be subject to claims that we or these employees, consultants and contractors have used or disclosed such intellectual property, including know-how, trade secrets or other proprietary information. Litigation may be necessary to defend against these claims. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel, or access to consultants and contractors. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management.

**Changes to the patent law in the United States and other jurisdictions could diminish the value of patents in general, thereby impairing our ability to protect our products.**

As is the case with other biopharmaceutical companies, our success is heavily dependent on intellectual property, particularly patents. Obtaining and enforcing patents in the pharmaceutical industry involves both technological and legal complexity and is therefore costly, time consuming and inherently uncertain. Recent patent reform legislation in the United States and other countries, including the Leahy-Smith America Invents Act, or Leahy-Smith Act, signed into law on September 16, 2011, could increase those uncertainties and costs.

The Leahy-Smith Act includes a number of significant changes to U.S. patent law. These include provisions that affect the way patent applications are prosecuted, redefine prior art and provide more efficient and cost-effective avenues for competitors to challenge the validity of patents. In addition, the Leahy-Smith Act has transformed the U.S. patent system into a "first to file" system. The first-to-file provisions, however, only became effective on March 16, 2013. Accordingly, it is not yet clear what, if any, impact the Leahy-Smith Act will have on the operation of our business. However, the Leahy-Smith Act and its implementation could make it more difficult to obtain patent protection for our inventions and increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents, all of which could harm our business, results of operations and financial condition.

The U.S. Supreme Court has ruled on several patent cases in recent years, either narrowing the scope of patent protection available in certain circumstances or weakening the rights of patent owners in certain situations. Further, there have been recent proposals for additional changes to the patent laws of the United States and other countries that, if adopted, could impact our ability to obtain patent protection for our proprietary technology or our ability to enforce our proprietary technology. Depending on future actions by the U.S. 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 weaken our ability to obtain new patents or to enforce our existing patents and patents that we might obtain in the future. In particular, under recent Supreme Court precedent, it is unclear to what extent naturally occurring material must be transformed in order to become eligible for patentability. Any future decisions by the U.S. Supreme Court, or by another governing body in a jurisdiction where we hold patent protection for our products, that narrow such eligibility would result in the diminishment, and potentially the complete loss, of patent protection afforded our products.

**Third-party claims of intellectual property infringement may prevent or delay our development and commercialization efforts.**

Our commercial success depends in part on our avoiding infringement of the patents and proprietary rights of third-parties. There is a substantial amount of litigation, both within and outside the United States, involving patent and other intellectual property rights in the biotechnology and pharmaceutical industries, including patent infringement lawsuits, interferences, oppositions and reexamination proceedings before the USPTO. Numerous U.S. and foreign issued patents and pending patent applications owned by third-parties exist in the fields in which we and our collaborators are developing drug product candidates. As the biotechnology and pharmaceutical industries expand and more patents are issued, the risk increases that our drug product candidates may be subject to third-party claims of patent infringement.

Third-parties may assert that we are employing their proprietary technology without authorization. There may be third-party patents or patent applications with claims to materials, formulations, methods of manufacture or methods for treatment related to the use or manufacture of our proprietary treatment, our consumer products and/or our other drug product candidates. Because patent applications can take many years to issue, there may be currently pending patent applications of which we are unaware that ultimately result in issued patents that our drug product candidates may infringe. In addition, third-parties may obtain patents in the future and claim that use of our technologies infringes upon these patents. If any third-party patents were held by a court of competent jurisdiction to cover the manufacturing process of any of our drug product candidates, any drug substance formed during our manufacturing process or any of our final products themselves, the holders of any such patents may be able to block our ability to commercialize such drug product candidate unless we obtain a license under the applicable patents, or until such patents expire. Similarly, if any third-party patent were held by a court of competent jurisdiction to cover aspects of our formulations or methods of use, the holders of any such patent may be able to block our ability to develop and commercialize the applicable drug product candidate unless we obtain a license or until such patent expires. In either case, such a license may not be available on commercially reasonable terms or at all.

Parties making claims against us may request and/or obtain injunctive or other equitable relief, which could effectively block our ability to further develop and commercialize one or more of our drug product candidates. Defense of these claims, regardless of their merit, would subject us to substantial litigation expense and would be a substantial diversion of employee resources from our business. In the event of a successful claim of infringement against us, we may have to pay substantial damages, including treble damages and attorneys' fees for willful infringement, obtain one or more licenses from third-parties, pay royalties or redesign our infringing products or manufacturing processes, which may be impossible and in any case would require substantial time and monetary expenditure. We cannot predict whether any such license would be available at all or whether it would be available on commercially reasonable terms. Furthermore, even in the absence of litigation, we may need to obtain licenses from third-parties to advance our research, manufacture clinical study and trial supplies or to facilitate commercialization of our drug product candidates. We may fail to obtain any of these licenses at a reasonable cost or on reasonable terms, if at all. In that event, we would be unable to further develop and commercialize one or more of our drug product candidates, which could harm our business significantly. We cannot provide any assurances that third-party patents will not be enforced against our products, which could result in either an injunction prohibiting our sales or, with respect to our sales, an obligation on our part to pay royalties or other forms of compensation to third-parties.

**We may be required to initiate costly and time-consuming litigation in order to enforce our proprietary rights.**

Even where laws provide us with patent protection covering our products, litigation could become necessary to enforce and determine the scope of our proprietary rights, which would require significant time and expense and divert the resources of management, and the outcome of any such litigation would be highly



uncertain. If we or one of our future collaboration partners were to initiate legal proceedings against a third-party to enforce a patent covering the product candidate, the defendant could counterclaim that our asserted patent is invalid and/or unenforceable. In patent litigation in the United States, defendant counterclaims alleging invalidity and/or unenforceability are commonplace. Grounds for a validity challenge could be an alleged failure to meet any of several statutory requirements, including lack of novelty, obviousness or non-enablement. Patents may be unenforceable if someone connected with prosecution of the patent withheld relevant information from the USPTO, or made a misleading statement, during prosecution. The outcomes of proceedings involving assertions of invalidity and unenforceability are unpredictable.

It is possible that prior art exists of which we and the patent examiner were unaware during prosecution, which could render our patents invalid. Moreover, it is also possible that existing prior art of which we are aware, but which we do not believe is relevant to our current or future patents, could nevertheless be determined to render our patents invalid. If a defendant were to prevail on a legal assertion of invalidity and/or unenforceability of our patents covering one of our product candidates, we would lose at least part, and perhaps all, of the patent protection on such product candidate. Such a loss of patent protection would harm our business. Moreover, our competitors, some of whom may have substantially greater intellectual property portfolios and resources than we do, could counterclaim in any suit to enforce our patents that we infringe their intellectual property.

Interference, derivation or other proceedings brought at the USPTO, may be necessary to determine the priority or patentability of inventions with respect to our patent applications or those of our licensors or potential collaboration partners. Litigation or USPTO proceedings brought by us may fail or may be invoked against us by third-parties. Even if we are successful, domestic or foreign litigation or USPTO or foreign patent office proceedings may result in substantial costs and distraction to our management. We may not be able to prevent misappropriation of our proprietary rights, particularly in countries where the laws may not protect such rights as fully as in the United States.

An adverse determination of any litigation or other proceedings could put one or more of our patents at risk of being invalidated, interpreted narrowly or amended such that they do not cover our product candidates. Moreover, such adverse determinations could put our patent applications at risk of not issuing, or issuing with limited and potentially inadequate scope to cover our product candidates or to prevent others from marketing similar products.

Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation or other proceedings, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation or other proceedings. In addition, during the course of this kind of litigation or proceedings, there could be public announcements of the results of hearings, motions or other interim proceedings or developments or public access to related documents. If investors perceive these results to be negative, the market price for our ordinary shares could be significantly harmed.

**Our inability or failure to adequately protect our trademarks could have a negative impact on our brand image and limit our ability to penetrate new markets.**

We believe trademarks will be an important element of the success of our consumer brand and products. We are currently considering product naming alternatives and will apply for federal registration of any trademarks with the USPTO and the registries of countries where stores are located or likely to be located in the future. There can be no assurance that we will obtain registrations that we apply for or that the registrations we obtain will prevent the imitation of our products or infringement of our intellectual property rights by others. If a third-party copies our products in a manner that projects lesser quality or carries a negative connotation, our brand image could be materially adversely affected.

## Risks Related to this Offering and Ownership of Our Common Stock

**The market price of our common stock may be highly volatile, and you may not be able to resell your shares at or above the initial public offering price.**

The market price of our common stock is likely to be volatile. Our stock price could be subject to wide fluctuations in response to a variety of factors, including the following:

- adverse results or delays in commencing or completing our proof-of-concept studies and future clinical trials;
- inability to obtain additional funding;
- any delay in filing an IND for any drug product candidate and any adverse development or perceived adverse development with respect to the FDA's review of that IND;
- failure to successfully develop and commercialize our drug product candidates or consumer products;
- failure to generate significant sales for our consumer products;
- changes in laws or regulations applicable to our consumer products or drug product candidates, including without limitation, coverage and reimbursement policies;
- inability to obtain adequate product supply for our drug product candidates or consumer product, or the inability to do so at acceptable prices;
- any delay in launching or otherwise commercializing our consumer brand and products;
- adverse regulatory decisions;
- introduction of new products or technologies by our competitors;
- failure to meet or exceed product development or financial projections we provide to the public;
- failure to meet or exceed the estimates and projections of the investment community;
- the perception of the pharmaceutical industry or dietary supplement industry by the public, legislatures, regulators and the investment community;
- announcements of significant acquisitions, strategic partnerships, joint ventures or capital commitments by us or our competitors;
- disputes or other developments relating to proprietary rights, including patents, litigation matters and our ability to obtain patent protection for our technologies;
- additions or departures of key scientific or management personnel;
- significant lawsuits, including patent or stockholder litigation;
- changes in the market valuations of similar companies;
- sales of our common stock by us or our stockholders in the future; and
- trading volume of our common stock.

In addition, the stock market in general, and the market for smaller pharmaceutical and biotechnology companies in particular, have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of these companies. Broad market and industry factors may negatively affect the market price of our common stock, regardless of our actual operating performance. As a result of this volatility, you may not be able to sell your common stock at or above the initial public offering price.

### **An active trading market for our common stock may not develop.**

Prior to this offering, there has not been a public market for our common stock. Although we intend to apply to have our common stock listed on                     , an active trading market for our shares may never develop or be sustained following this offering. If an active market for our common stock does not develop, you may not be able to sell your shares quickly or at the market price. An inactive market may also impair our ability to raise capital to continue to fund operations by selling shares and may impair our ability to acquire other companies or technologies by using our shares as consideration. The initial public offering price for the shares will be determined by negotiations between us and representatives of the underwriters and may not be indicative of prices that will prevail in the trading market.

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

Our executive officers, directors, 5% or greater stockholders and their affiliates beneficially own approximately % of our voting stock. Based upon the assumed number of shares to be sold in this offering as set forth on the cover page of this prospectus, upon the closing of this offering, that same group will beneficially own approximately % of our outstanding voting stock. Therefore, even after this offering these stockholders will have the ability to exert significant control over us through this ownership position. These stockholders may be able to determine all matters requiring stockholder approval. For example, these stockholders, acting together, may be able to control elections of directors, amendments of our organizational documents, or approval of any merger, sale of assets, or other major corporate transaction. This may prevent or discourage unsolicited acquisition proposals or offers for our common stock that you may believe are in your best interest as one of our stockholders or entrench our management and/or the board of directors.

**We are an "emerging growth company," and the reduced reporting requirements applicable to emerging growth companies may make our common stock less attractive to investors.**

We are an "emerging growth company," as defined in the JOBS Act. For as long as we continue to be an emerging growth company, we may take advantage of exemptions from various reporting requirements that are applicable to other public companies that are not "emerging growth companies," including exemption from compliance with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002, or the Sarbanes-Oxley Act, reduced disclosure obligations regarding executive compensation in this prospectus and our periodic reports and proxy statements, and exemptions from the requirements of holding a non-binding advisory vote on executive compensation. We will remain an emerging growth company until the earlier of (1) the last day of the fiscal year (a) following the fifth anniversary of the completion of this offering, (b) in which we have total annual gross revenue of at least \$1 billion, or (c) in which we are deemed to be a large accelerated filer, which means the market value of our common stock that is held by non-affiliates exceeds \$700 million as of the prior June 30<sup>th</sup>, and (2) the date on which we have issued more than \$1 billion in non-convertible debt during the prior three-year period.

Even after we no longer qualify as an emerging growth company, we may still qualify as a "smaller reporting company" which would allow us to take advantage of many of the same exemptions from disclosure requirements including exemption from compliance with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act and reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements. We cannot predict if investors will find our common stock less attractive because we may 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.

Under the JOBS Act, emerging growth companies can also delay adopting new or revised accounting standards until such time as those standards apply to private companies. We have irrevocably elected not to avail ourselves of this exemption from new or revised accounting standards and, therefore, will be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

**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. In addition, any testing by us conducted in connection with Section 404 of 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 consolidated financial statements or identify other areas for further attention or improvement. 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.

**We will incur significant increased costs as a result of operating as a public company, and our management will be required to devote substantial time to new compliance initiatives.**

As a public company, we will incur significant legal, accounting and other expenses that we did not incur as a private company. In addition, the Sarbanes-Oxley Act of 2002, as well as rules subsequently implemented by the SEC, and \_\_\_\_\_ have imposed various requirements on public companies. In July 2010, the Dodd-Frank Wall Street Reform and Consumer Protection Act, or the Dodd-Frank Act, was enacted. There are significant corporate governance and executive compensation related provisions in the Dodd-Frank Act that require the SEC to adopt additional rules and regulations in these areas such as "say on pay" and proxy access. Stockholder activism, the current political environment and the current high level of government intervention and regulatory reform may lead to substantial new regulations and disclosure obligations, which may lead to additional compliance costs and impact (in ways we cannot currently anticipate) the manner in which we operate our business. Our management and other personnel will need to devote a substantial amount of time to these compliance initiatives. Moreover, these rules and regulations will increase our legal and financial compliance costs and will make some activities more time-consuming and costly. For example, we expect these rules and regulations to make it more difficult and more expensive for us to obtain director and officer liability insurance and we may be required to incur substantial costs to maintain our current levels of such coverage.

We are currently evaluating these rules and regulations, and cannot predict or estimate the amount of additional costs we may incur or the timing of such costs. These rules and regulations are often subject to varying interpretations, in many cases due to their lack of specificity, and, as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. This could result in continuing uncertainty regarding compliance matters and higher costs necessitated by ongoing revisions to disclosure and governance practices.

**If you purchase our common stock in this offering, you will incur immediate and substantial dilution in the book value of your shares.**

Investors purchasing common stock in this offering will pay a price per share that substantially exceeds the pro forma as adjusted book value (deficit) per share of our tangible assets after subtracting our liabilities. As a result, investors purchasing common stock in this offering will incur immediate dilution of \$ \_\_\_\_\_ per share, based on an assumed initial public offering price of \$ \_\_\_\_\_ per share (the midpoint of the price range set forth on the cover page of this prospectus) and our pro forma as adjusted net tangible book value (deficit) as of June 30, 2014. For more information on the dilution you may suffer as a result of investing in this offering, see "Dilution."

This dilution is due to the substantially lower price paid by our investors who purchased shares prior to this offering as compared to the price offered to the public in this offering, and the exercise of stock options granted to our employees. In addition, as of June 30, 2014, options to purchase \_\_\_\_\_ shares of our common stock at a weighted-average exercise price of \$ \_\_\_\_\_ per share were outstanding. The exercise of any of these options would result in additional dilution. As a result of the dilution to investors purchasing shares in this offering, investors may receive significantly less than the purchase price paid in this offering, if anything, in the event of our liquidation.

**Sales of a substantial number of shares of our common stock in the public market by our existing stockholders could cause our stock price to fall.**

Sales of a substantial number of shares of our common stock in the public market or the perception that these sales might occur, could depress the market price of our common stock and could impair our ability to raise capital through the sale of additional equity securities. We are unable to predict the effect that sales may have on the prevailing market price of our common stock.

Substantially all of our existing stockholders are subject to lock-up agreements with the underwriters of this offering that restrict the stockholders' ability to transfer shares of our common stock for at least 180 days from the date of this prospectus. The lock-up agreements limit the number of shares of common stock that may be sold immediately following the public offering. Subject to certain limitations, including sales volume limitations with respect to shares held by our affiliates, substantially all of our outstanding shares prior to this offering will become eligible for sale upon expiration of the lock-up period, as calculated and described in more detail in the section entitled "Shares Eligible for Future Sale." In addition, shares issued or issuable upon exercise of options and warrants vested as of the expiration of the lock-up period will be eligible for sale at that time. Sales of stock by these stockholders could have a material adverse effect on the trading price of our common stock.

Certain holders of our securities are entitled to rights with respect to the registration of their shares under the Securities Act of 1933, as amended, or the Securities Act, subject to the 180-day lock-up arrangement described above. Registration of these shares under the Securities Act would result in the shares becoming freely tradable without restriction under the Securities Act. Any sales of securities by these stockholders could have a material adverse effect on the trading price of our common stock.

**Future sales and issuances of our common stock or rights to purchase common stock, including pursuant to our equity incentive plans, could result in additional dilution of the percentage ownership of our stockholders and could cause our stock price to fall.**

We expect that significant additional capital will be needed in the future to continue our planned operations. To the extent we raise additional capital by issuing equity securities, our stockholders may experience substantial dilution. We may sell common stock, convertible securities or other equity securities in one or more transactions at prices and in a manner we determine from time to time. If we sell common stock, convertible securities or other equity securities in more than one transaction, investors may be materially diluted by subsequent sales. These sales may also result in material dilution to our existing stockholders, and new investors could gain rights superior to our existing stockholders.

Pursuant to the 2014 plan, our management is authorized to grant stock options and other equity-based awards to our employees, directors and consultants. The number of shares available for future grant under the 2014 plan will automatically increase each year by % of all shares of our capital stock outstanding as of December 31 of the prior calendar year, subject to the ability of our board of directors to take action to reduce the size of the increase in any given year. Currently, we plan to register the increased number of shares available for issuance under the 2014 plan each year. If our board of directors elects to increase the number of shares available for future grant by the maximum amount each year, our stockholders may experience additional dilution, which could cause our stock price to fall.

**We are at risk of securities class action litigation.**

In the past, securities class action litigation has often been brought against a company following a decline in the market price of its securities. This risk is especially relevant for us because pharmaceutical companies have experienced significant stock price volatility in recent years. If we face such litigation, it could result in substantial costs and a diversion of management's attention and resources, which could harm our business.

**We have broad discretion in the use of the net proceeds from this offering and may not use them effectively.**

Our management will have broad discretion in the application of the net proceeds, including for any of the purposes described in "Use of Proceeds," and you will not have the opportunity as part of your investment decision to assess whether the net proceeds are being used appropriately. Because of the number and variability of factors that will determine our use of the net proceeds from this offering, their ultimate use may vary substantially from their currently intended use. The failure by our management to apply these funds effectively could harm our business. Pending their use, we may invest the net proceeds from this offering in short-term, investment-grade, interest-bearing securities. These investments may not yield a favorable return to our stockholders.

**We do not intend to pay dividends on our common stock so any returns will be limited to the value of our stock.**

We have never declared or paid any cash dividend on our common stock. We currently anticipate that we will retain future earnings for the development, operation and expansion of our business and do not anticipate declaring or paying any cash dividends for the foreseeable future. Any return to stockholders will therefore be limited to the appreciation of their stock.

**Provisions in our amended and restated certificate of incorporation and bylaws, as well as provisions of Delaware law, could make it more difficult for a third-party to acquire us or increase the cost of acquiring us, even if doing so would benefit our stockholders or remove our current management.**

Some provisions of our charter documents and Delaware law may have anti-takeover effects that could discourage an acquisition of us by others, even if an acquisition would be beneficial to our stockholders and may prevent attempts by our stockholders to replace or remove our current management. These provisions include:

- authorizing the issuance of "blank check" preferred stock, the terms of which may be established and shares of which may be issued without stockholder approval;
- limiting the removal of directors by the stockholders;
- creating a staggered board of directors;
- prohibiting stockholder action by written consent, thereby requiring all stockholder actions to be taken at a meeting of our stockholders;
- eliminating the ability of stockholders to call a special meeting of stockholders; and
- establishing advance notice requirements for nominations for election to the board of directors or for proposing matters that can be acted upon at stockholder meetings.

These provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors, which is responsible for appointing the members of our management. In addition, we are subject to Section 203 of the Delaware General Corporation Law, which generally prohibits a Delaware corporation from engaging in any of a broad range of business combinations with an interested stockholder for a period of three years following the date on which the stockholder became an interested stockholder, unless such transactions are approved by our board of directors. This provision could have the effect of delaying or preventing a change of control, whether or not it is desired by or beneficial to our stockholders. Further, other provisions of Delaware law may also discourage, delay or prevent someone from acquiring us or merging with us.

## SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements. The forward-looking statements are contained principally in the sections entitled "Summary," "Risk Factors," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Business." These statements relate to future events or to our future financial performance and involve known and unknown risks, uncertainties and other factors which 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:

- the success, cost and timing of our product development activities and clinical studies and trials;
- our ability to obtain and maintain regulatory approval of our drug product candidates, and any related restrictions, limitations, and/or warnings in the label of an approved drug product candidate;
- our ability to obtain funding for our operations beyond this offering, including funding necessary to complete clinical development and file an NDA for drug product candidates;
- our plans to launch the consumer brand and our cornerstone product;
- our plans to develop and commercialize consumer products and our drug product candidates;
- our ability to attract collaborators with development, regulatory and commercialization expertise;
- the size and growth potential of the markets for our consumer products and our drug product candidates, and our ability to serve those markets;
- our ability to develop sales and marketing capabilities, whether alone or with potential future collaborators;
- the rate and degree of market acceptance of consumer products and our drug product candidates;
- regulatory developments in the United States and foreign countries;
- the performance of our third-party suppliers and manufacturers;
- the success of competing therapies that are or become available;
- the loss of key scientific or management personnel;
- our expectations regarding the period during which we qualify as an emerging growth company under the JOBS Act;
- our use of the proceeds from this offering;
- the accuracy of our estimates regarding expenses, future revenue, capital requirements and needs for additional financing; and
- our expectations regarding our ability to obtain and adequately maintain sufficient intellectual property protection for our drug product candidates.

In some cases, you can identify these statements by terms such as "anticipate," "believe," "could," "estimate," "expects," "intend," "may," "plan," "potential," "predict," "project," "should," "will," "would" or the negative of those terms, and similar expressions. These forward-looking statements reflect our management's beliefs and views with respect to future events and are based on estimates and assumptions as of the date of this prospectus and are subject to risks and uncertainties. We discuss many of these risks in greater detail under the heading "Risk Factors." Moreover, we operate in a very competitive and rapidly changing environment. New risks emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. Given these uncertainties, you should not place undue reliance on these forward-looking statements. The Private Securities Litigation Reform Act of 1995 and Section 27A of the Securities Act of 1933, as amended, do not protect any forward-looking statements that we make in connection with this offering.

You should read this prospectus and the documents that we reference in this prospectus and have filed as exhibits to the registration statement, of which this prospectus is a part, completely and with the understanding that our actual future results may be materially different from what we expect. We qualify all of the forward-looking statements in this prospectus by these cautionary statements.

Except as required by law, we assume no obligation to update these forward-looking statements publicly, or to update the reasons actual results could differ materially from those anticipated in these forward-looking statements, even if new information becomes available in the future.



## INDUSTRY AND MARKET DATA

Certain industry data and market data included in this prospectus were obtained from independent third party surveys, market research, publicly available information, reports of governmental agencies and industry publications and surveys. All of management's estimates presented herein are based upon management's review of independent third party surveys and industry publications prepared by a number of sources and other publicly available information. All of the market data used in this prospectus involves a number of assumptions and limitations, and you are cautioned not to give undue weight to such estimates. Although neither we nor the underwriters have independently verified the accuracy or completeness of any third-party information, we believe that the information from these industry publications and surveys that is included in this prospectus is reliable. The industry in which we operate is subject to a high degree of 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.

## USE OF PROCEEDS

We estimate that our net proceeds from the sale of shares of our common stock in this offering will be approximately \$ \_\_\_\_\_ million (or \$ \_\_\_\_\_ million if the underwriters exercise their option to purchase additional shares from us in full), based on the assumed initial public offering price of \$ \_\_\_\_\_ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. Each \$1.00 increase (decrease) in the assumed initial public offering price of \$ \_\_\_\_\_ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, would increase (decrease) our net proceeds, assuming that the number of common 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 and offering expenses, by \$ \_\_\_\_\_ million.

We intend to use the net proceeds of this offering as follows:

- \$ \_\_\_\_\_ million to fund research and development efforts of our drug product candidates for the treatment of nocturnal leg cramps and spasms associated with severe neuromuscular conditions;
- \$ \_\_\_\_\_ million for the sales and marketing efforts to launch our consumer brand and products; and
- the remainder to fund working capital and general corporate purposes, which may include the acquisition or licensing of drug product candidates, technologies, compounds, other assets or complementary businesses.

The expected use of the net proceeds from this offering represents our intentions based upon our current plans and business conditions, which could change in the future as our plans and business conditions evolve. The amounts and timing of our actual expenditures depend on numerous factors, including the progress of our pre-clinical and clinical development efforts. As a result, our management will have broad discretion in applying the net proceeds from this offering. Although we may use a portion of the net proceeds from this offering for the acquisition or licensing, as the case may be, of drug product candidates, technologies, compounds, other assets or complementary businesses, we have no current understandings, agreements or commitments to do so. Pending these uses, we intend to invest the net proceeds from this offering in interest-bearing, investment-grade securities.

We believe that the net proceeds from this offering, together with our existing cash resources, will be sufficient to enable us to fund our operations for at least the next \_\_\_\_\_. We have based this estimate on assumptions that may prove to be incorrect, and we could use our available capital resources sooner than we currently expect.

## DIVIDEND POLICY

We have never declared or paid any cash dividends on our capital stock. We currently intend to retain all available funds and any future earnings to support our operations and finance the growth and development of our business and do not intend to declare or pay any cash dividends in the foreseeable future. As a result, you will likely need to sell your shares of common stock to realize a return on your investment, and you may not be able to sell your shares at or above the price you paid for them. Payment of cash dividends, if any, in the future will be at the discretion of our board of directors and will depend on then-existing conditions, including our financial condition, operating results, contractual restrictions, capital requirements, business prospects and other factors our board of directors may deem relevant.

## CAPITALIZATION

The following table sets forth our cash and our capitalization as of June 30, 2014:

- on an actual basis;
- on a pro forma basis, giving effect to the conversion of all our outstanding convertible preferred stock into an aggregate of \_\_\_\_\_ shares of our common stock upon the closing of this offering; and
- on a pro forma as adjusted basis, giving effect to (i) the conversion of all our outstanding convertible preferred stock into an aggregate of \_\_\_\_\_ shares of our common stock upon the closing of this offering and (ii) the sale by us of \_\_\_\_\_ shares of our common stock in this offering at an assumed initial public offering price of \$ \_\_\_\_\_ per share (the midpoint of the price range set forth on the cover page of this prospectus), and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us.

The pro forma and pro forma as adjusted information below is illustrative only, and our capitalization following the closing of this offering will be adjusted based on the actual initial public offering price and other terms of this offering determined at pricing. You should read this table together with our consolidated financial statements and the related notes appearing at the end of this prospectus, the sections entitled "Selected Financial Data" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" and other financial information appearing elsewhere in this prospectus.

	As of June 30, 2014		
	Actual	Pro Forma	Pro Forma As Adjusted <sup>(1)</sup>
Cash	\$	\$	\$
Series A convertible preferred stock, \$0.0001 par value; _____ shares authorized, _____ shares issued and outstanding, actual; no shares authorized, issued and outstanding, pro forma and pro forma as adjusted	\$	\$	\$
Series B convertible preferred stock, \$0.0001 par value; _____ shares authorized, _____ shares issued and outstanding, actual; no shares authorized, issued and outstanding, pro forma and pro forma as adjusted			
Stockholders' (deficit) equity:			
Preferred stock, \$0.0001 par value; no shares authorized, issued and outstanding, actual; _____ shares authorized, no shares issued and outstanding, pro forma and pro forma as adjusted			
Common stock, \$0.0001 par value; _____ shares authorized, _____ shares issued and outstanding, actual; _____ shares authorized, _____ shares issued and outstanding, pro forma; _____ shares authorized, _____ shares issued and outstanding, pro forma as adjusted			
Additional paid-in capital			
Accumulated deficit			
<b>Total stockholders' (deficit) equity</b>	<u>\$</u>	<u>\$</u>	<u>\$</u>
<b>Total capitalization</b>	<u>\$</u>	<u>\$</u>	<u>\$</u>

<sup>(1)</sup> Each \$1.00 increase (decrease) in the assumed initial public offering price of \$ \_\_\_\_\_ per share (the midpoint of the price range set forth on the cover page of this prospectus) would increase (decrease) the pro forma as adjusted amounts of cash,

additional paid-in capital, total stockholders' (deficit) equity and total capitalization by \$ \_\_\_\_\_ million, assuming the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us.

The number of shares of our common stock to be outstanding after this offering is based on \_\_\_\_\_ shares of common stock outstanding as of June 30, 2014, after giving effect to the conversion of our outstanding convertible preferred stock into \_\_\_\_\_ shares of common stock in connection with the closing of this offering, and excludes:

- \_\_\_\_\_ shares of common stock issuable upon the exercise of outstanding stock options as of June 30, 2014, at a weighted-average exercise price of \$ \_\_\_\_\_ per share; and
- \_\_\_\_\_ shares of common stock reserved for future issuance under our 2014 equity incentive plan, or the 2014 plan (including \_\_\_\_\_ shares of common stock reserved for issuance under our previously existing 2014 equity incentive plan, or the 2014 pre-IPO plan, which shares will be added to the shares reserved under the 2014 plan upon its effectiveness), which will become effective upon the execution and delivery of the underwriting agreement for this offering.

## DILUTION

If you invest in our common stock in this offering, your ownership interest will be immediately diluted to the extent of the difference between the initial public offering price per share and the pro forma as adjusted net tangible book value per share of our common stock immediately after this offering.

Our historical net tangible book deficit as of June 30, 2014 was \$(2.0) million, or (\$0.27) per share of common stock. Our historical net tangible book deficit is the amount of our total tangible assets less our liabilities and convertible preferred stock, which is not included within stockholders' deficit. Historical net tangible book deficit per share is our historical net tangible book deficit divided by the number of shares of common stock outstanding as of June 30, 2014.

Our pro forma net tangible book value as of June 30, 2014 was \$      million, or \$      per share of common stock. Pro forma net tangible book value represents total tangible assets less total liabilities. Pro forma net tangible book value per share represents pro forma net tangible book value divided by the total number of shares outstanding as of June 30, 2014, after giving effect to the conversion of all outstanding shares of our convertible preferred stock, into an aggregate of      shares of common stock upon the closing of this offering.

Pro forma as adjusted net tangible book value is our pro forma net tangible book value, plus the effect of the sale of      shares of our common stock in this offering at an assumed initial public offering price of \$      per share (the midpoint of the price range set forth on the cover page of this prospectus), and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us. Our pro forma as adjusted net tangible book value as of June 30, 2014 was \$      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 of \$      per share to new investors participating in this offering. We determine dilution per share to new investors by subtracting pro forma as adjusted net tangible book value per share after this offering from the assumed initial public offering price per share paid by new investors. The following table illustrates this dilution on a per share basis:

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Assumed initial public offering price per share	\$
Pro forma net tangible book value per share as of June 30, 2014	
Increase in pro forma as adjusted net tangible book value per share attributable to new investors participating in this offering	_____
Pro forma as adjusted net tangible book value per share after this offering	
Dilution per share to new investors participating in this offering	\$ _____

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A \$1.00 increase (decrease) in the assumed initial public offering price of \$      per share (the midpoint of the price range set forth on the cover page of this prospectus) would increase (decrease) the pro forma as adjusted net tangible book value per share after this offering by \$      per share and the dilution per share to new investors participating in this offering by \$      per share, 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 the estimated underwriting discounts and commissions and estimated offering expenses payable by us. Similarly, a one million share increase 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 the assumed initial public offering price of \$      per share (the midpoint of the price range set forth on the cover page of this prospectus) remains the same and after

deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us. A one million share decrease 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 \$ [redacted] and increase the dilution per share to new investors participating in this offering by \$ [redacted], assuming the assumed initial public offering price of \$ [redacted] per share (the midpoint of the price range set forth on the cover page of this prospectus) remains the same and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us.

If the underwriters exercise their option in full to purchase an additional [redacted] shares of our common stock in this offering, the pro forma as adjusted net tangible book value will increase to \$ [redacted] per share, representing an immediate increase to existing stockholders of \$ [redacted] per share and an immediate dilution of \$ [redacted] per share to new investors participating in this offering.

The following table summarizes, as of June 30, 2014, on a pro forma as adjusted basis described above, the differences between the number of shares of common stock purchased from us, the total consideration paid to us and the average price per share paid by existing stockholders and by new investors participating in this offering. The calculation below is based on an assumed initial public offering price of \$ [redacted] per share (the midpoint of the price range set forth on the cover page of this prospectus), before deducting the estimated 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					
<b>Total</b>		<b>100%</b>		<b>100%</b>	<b>\$</b>

In addition, if the underwriters' option to purchase additional shares is exercised in full, the number of shares of common stock held by existing stockholders will be further reduced to [redacted] % of the total number of common stock to be outstanding upon completion of this offering, and the number of shares of common stock held by investors participating in this offering will be further increased to [redacted] shares, or [redacted] % of the total number of shares of common stock to be outstanding upon the completion of this offering.

The foregoing discussion is based on [redacted] shares of common stock outstanding as of June 30, 2014, after giving effect to the conversion of our outstanding convertible preferred stock into an aggregate of [redacted] shares of common stock upon the closing of this offering, and excludes:

- [redacted] shares of common stock issuable upon the exercise of outstanding stock options at a weighted-average exercise price of \$ [redacted] per share; and
- [redacted] shares of common stock reserved for future issuance under the 2014 plan (including [redacted] shares of common stock reserved for issuance under the 2014 pre-IPO plan, which shares will be added to the shares reserved under the 2014 plan upon its effectiveness), which will become effective upon the execution and delivery of the underwriting agreement for this offering.

In addition, the initial share reserves under the 2014 plan will be subject to automatic annual increases in accordance with the terms of the plans. Furthermore, we may choose to raise additional capital through the sale of equity or convertible debt securities due to market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. To the extent that any of these options are exercised, new options are issued under our equity incentive plans or we issue additional shares of common stock or other equity or convertible debt securities in the future, there will be further dilution to investors participating in this offering.

**SELECTED FINANCIAL DATA**

The following table sets forth our selected financial data. We derived the statement of operations data for the period from February 26, 2014 (inception) to June 30, 2014, and the balance sheet data as of June 30, 2014 from our audited financial statements, included elsewhere in this prospectus. Our historical results are not necessarily indicative of results to be expected for the remainder of 2014 or any period in the future. The selected financial data presented below should be read in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our financial statements and the related notes thereto, included elsewhere in this prospectus. The selected financial data in this section is not intended to replace our financial statements and the related notes thereto.

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	<b>Period from February 26, 2014 (Inception) to June 30, 2014</b>
<b>Statement of Operations Data:</b>	
Operating expenses:	
Research and development	\$ 1,129,667
General and administrative	1,155,365
Total operating expenses	<u>2,285,032</u>
Loss from operations	(2,285,032)
Interest income	2,658
Net loss attributable to common stockholders	<u>\$ (2,282,374)</u>
Net loss per share attributable to common stockholders — basic and diluted <sup>(1)</sup>	<u>\$ (0.36)</u>
Weighted-average number of common shares used in net loss per share attributable to common stockholders — basic and diluted <sup>(1)</sup>	<u>6,395,527</u>

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<sup>(1)</sup> See Note 1 and Note 11 of our financial statements included elsewhere herein for an explanation of the method used to compute basic and diluted net loss per share of common stock and the weighted-average number of shares used in computation of the per share amounts.

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	<b>As of June 30, 2014</b>
<b>Balance Sheet Data:</b>	
Cash	\$ 14,287,264
Working capital <sup>(2)</sup>	13,582,267
Total assets	14,515,515
Convertible preferred stock	15,637,032
Total stockholders' deficit	(1,959,369)

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<sup>(2)</sup> We define working capital as current assets less current liabilities.



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

*The following discussion and analysis should be read in conjunction with "Selected Financial Data" and our financial statements and related notes included elsewhere in this prospectus. This discussion and analysis and other parts of this prospectus contain forward-looking statements based upon current beliefs, plans and expectations that involve risks, uncertainties and assumptions, such as statements regarding our plans, objectives, expectations, intentions and projections. Our actual results and the timing of selected events could differ materially from those anticipated in these forward-looking statements as a result of several factors, including those set forth under "Risk Factors" and elsewhere in this prospectus. You should carefully read the "Risk Factors" section of this prospectus to gain an understanding of the important factors that could cause actual results to differ materially from our forward-looking statements. Please also see the section entitled "Special Note Regarding Forward-Looking Statements."*

### Overview

We are a biopharmaceutical company that is developing innovative and proprietary treatments for nocturnal leg cramps and spasms associated with severe neuromuscular conditions. Our founders' novel insights regarding neuromuscular physiology form the basis of our development efforts. We believe that activation of certain receptors in primary sensory neurons reduces the repetitive firing, or hyperexcitability, of alpha-motor neurons, thereby preventing or reducing the frequency and intensity of muscle cramps and spasms. We also believe that we are the only company developing products based on this mechanism of muscle cramp inhibition. We have conducted three randomized, blinded, placebo-controlled cross-over studies of our proprietary treatment, which have shown a statistically significant reduction in the intensity of muscle cramps induced in healthy normal volunteers. We intend to initially focus our drug development efforts on developing a product to treat nocturnal leg cramps. There is no drug product currently available in the United States that has been approved to treat nocturnal leg cramps. We estimate, based on independent third-party survey results, that approximately four million U.S. adults over the age of 65 that suffer from nocturnal leg cramps on a daily basis. In the second quarter of 2015, we intend to initiate at least one human proof-of-concept study of our proprietary treatment for individuals with nocturnal leg cramps.

We have incurred an operating loss since our inception and we anticipate that we will continue to incur operating losses for at least the next several years. Since inception, we have raised net proceeds of approximately \$41.0 million through private placements of our convertible preferred stock to finance our operations. We expect that our research and development and general and administrative expenses will continue to increase from their current levels as we continue the development of our drug product candidates, and we will incur significant sales and marketing expense associated with the launch of our consumer brand, our cornerstone product and future products. As a result, we will need additional capital to fund our future operations.

### Components of Operating Results

#### Revenue

To date, we have not generated any revenue. In the future, we may generate revenue from a combination of drug product sales, consumer product sales, government or other third-party funding, marketing and distribution arrangements and other collaborations, strategic alliances and licensing arrangements, or a combination of these sources. To the extent any of our products are successfully commercialized, we expect that any revenue we generate will fluctuate from quarter to quarter as a result of the amount and timing of payments that we receive upon the sale of our products, the timing and amount of license fees, milestone and other payments. If we fail to complete the development of our drug product candidates in a timely manner or obtain regulatory approval for them or fail to successfully commercialize our consumer products,

our ability to generate future revenue, and our results of operations and financial position, would be materially adversely affected.

### **Research and Development Expenses**

Our research and development expenses have related primarily to the development of our proprietary treatment of muscle cramps and spasms. These costs include salaries and other compensation-related costs, such as stock-based compensation, for research and development employees, costs of clinical studies of our proprietary treatment, costs for consultants who we utilize to supplement our personnel, fees paid to third-parties, facilities and overhead expenses, cost of laboratory supplies and other outside expenses.

Research and development costs are expensed as incurred. Clinical study and other development costs incurred by third-parties are expensed as the contracted work is performed. We accrue for costs incurred as the services are being provided by monitoring the status of the study or project and the invoices received from our external service providers. We adjust our accruals as actual costs become known.

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 over the next several years as we increase personnel and compensation costs and seek to conduct proof-of-concept clinical studies, and preclinical work, prepare regulatory filings for our drug product candidates and commence potential Phase 2 and Phase 3 clinical trials. It is difficult to determine, with certainty, the duration and completion costs of our current or future pre-clinical programs, clinical studies and clinical trials of our drug product candidates.

The duration, costs and timing of clinical studies and clinical trials of our proprietary treatment and drug product candidates will depend on a variety of factors that include, but are not limited to, the following:

- per patient costs;
- the number of patients that participate;
- the number of sites;
- the countries in which the studies and trials are conducted;
- the length of time required to enroll eligible patients;
- the drop-out or discontinuation rates of patients;
- potential additional safety monitoring or other studies requested by regulatory agencies;
- the duration of patient follow-up;
- the efficacy and safety profile of the drug product candidates; and
- timing and receipt of any regulatory approvals.

In addition, the probability of success for each drug product candidate will depend on numerous factors, including competition, manufacturing capability and commercial viability. We will determine which programs to pursue and how much to fund each program in response to the scientific and clinical success of our proprietary treatment and each drug product candidate, as well as an assessment of each drug product candidate's commercial potential.

### **General and Administrative Expenses**

General and administrative expenses consist primarily of salaries and other compensation-related costs, including stock-based compensation, for personnel in executive, finance and accounting, legal, corporate communications and general administration roles. Other significant costs include professional service fees including legal fees relating to patent and corporate matters, costs for consultants who we utilize to supplement our personnel, travel costs, external consulting costs and facility costs not otherwise included in research and development expenses.

General and administrative expenses also include costs related to our consumer brand and cornerstone product. To date, these costs include personnel costs, market research costs and other external costs. As we prepare to launch our cornerstone consumer product in the first quarter of 2016, costs will increase as we incur costs related to branding, product design, promotion, distribution, and other related sales and promotion activities.

We anticipate that our general and administrative expenses will increase in the future to support our continued research and development activities and potential commercialization of our consumer products and drug product candidates and the increased costs of operating as a public company. These increases will likely include increased costs related to the hiring of additional personnel and fees to outside consultants, lawyers and accountants, among other expenses. We expect to incur additional costs associated with being a public company, including expenses related to services associated with maintaining compliance with NASDAQ listing rules and SEC requirements, insurance and investor relations costs.

### **Interest Income**

Interest income consists of interest income on our cash accounts.

### **Results of Operations**

#### **Period from February 26, 2014 (Inception) to June 30, 2014**

The following table sets forth results of operations for the period from February 26, 2014 (inception) to June 30, 2014.

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	<b>Period from February 26, 2014 (Inception) to June 30, 2014</b>
Operating expenses:	
Research and development	\$ 1,129,667
General and administrative	1,155,365
Total operating expenses	2,285,032
Loss from operations	(2,285,032)
Interest income	2,658
Net loss	<u>\$ (2,282,374)</u>

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### **Research and Development Expenses**

Research and development expenses were \$1.1 million for the period from February 26, 2014 (inception) through June 30, 2014, and primarily consisted of the following:

- \$0.6 million of costs related to the clinical studies of our proprietary treatment;
- \$0.3 million of personnel related costs including salaries and other compensation related costs, including stock-based compensation; and
- \$0.2 million of external consulting costs incurred to supplement our research and development personnel.

### **General and Administrative Expenses**

General and administrative expenses were \$1.2 million for the period from February 26, 2014 (inception) to June 30, 2014, and were primarily related to:

- \$0.7 million of personnel costs including salaries and other compensation-related costs, such as stock-based compensation;

- \$0.2 million of professional service fees, including corporate legal costs as well as costs related to intellectual property, legal and filing costs;
- \$0.1 million of external consulting costs incurred to supplement our personnel;
- \$0.1 million of facility costs; and
- \$0.1 million of travel-related costs.

## **Liquidity and Capital Resources**

### **Overview**

Since inception, we have incurred an operating loss and we anticipate that we will continue to incur operating losses for at least the next several years. To date, we have not generated any revenues. We expect that our research and development and general and administrative expenses will continue to increase, and we will incur significant sales and marketing expense associated with the launch of our consumer brand and our cornerstone product. As a result, we will need additional capital to fund our operations, which we may raise through a combination of equity offerings, debt financings, other third-party funding, marketing and distribution arrangements and other collaborations, strategic alliances and licensing arrangements. As of June 30, 2014, we had \$14.3 million in cash. Our funds are held in bank deposit accounts. To date, we have financed our operations through private placements of equity securities.

### **Sources of Liquidity**

Since our inception, we have raised net proceeds of approximately \$41.0 million through private placements of convertible preferred stock.

From March 2014 through May 2014, we issued an aggregate of 15,775,221 shares of series A convertible preferred stock at \$1.00 per share and received aggregate proceeds of \$15.6 million, net of issuance costs.

Subsequent to June 30, 2014, from July 2014 through October 2014, we issued an aggregate of 14,078,647 shares of series B convertible preferred stock at \$1.81 per share and received aggregate proceeds of \$25.4 million, net of issuance costs.

Each share of series A and series B convertible preferred stock will convert into one share of common stock upon the closing of this offering.

As of June 30, 2014, we had no long-term debt.

We currently have no ongoing material financial commitments, such as lines of credit or guarantees that are expected to affect our liquidity over the next five years, other than leases.

### **Funding Requirements**

Our primary uses of capital are, and we expect will continue to be, compensation and related expenses, clinical costs, third-party research and development services, laboratory and related supplies, legal and other regulatory expenses, marketing and promotion costs related to our consumer brand and products and general administrative and overhead costs. Our future funding requirements will be heavily reliant upon the resources required to support our drug product candidates as well as our consumer brand and products.

### **Drug Product Candidates**

The successful development of any drug product candidate is highly uncertain. As such, at this time, we cannot reasonably estimate or know the nature, timing and costs of the efforts that will be necessary to complete the development of our future drug product candidates. We are also unable to predict when, if ever, material net cash inflows will commence from the sale of drug product candidates. This is due to the numerous risks and uncertainties associated with developing drug products, including the uncertainty of:

- successful enrollment in, and completion of, clinical studies and trials;
- receipt of marketing approvals from applicable regulatory authorities;
- establishing arrangements with third-party manufacturers;

- obtaining and maintaining patent and trade secret protection and regulatory exclusivity; and
- launching commercial sales of our products, if and when approved, whether alone or in collaboration with others.

A change in the outcome of any of these variables with respect to the development of any of our drug product candidates would significantly change the costs and timing associated with the development of that drug product candidate.

As our drug product candidates are still in the early stages of pre-clinical and clinical development and the outcome of these efforts is uncertain, we cannot estimate the actual amounts necessary to successfully complete the development and commercialization of our drug product candidates.

### **Consumer Brand and Products**

The development and launch of our consumer brand, our cornerstone product and future products is uncertain, including the timing and resources needed to support successful commercialization. Our future success depends, in large part, on our ability to implement a launch and growth strategy that establishes distribution and placement of our products and attracts consumers to our cornerstone product and future product offerings. Our success will rely on our ability, among others, to:

- enter into distribution and other strategic arrangements with third-party retailers and other potential distributors of our products;
- attract customers to our consumer brand and products through marketing and promotion efforts; and
- establish and maintain brand loyalty.

Our future funding requirements will be impacted by our ability to successfully launch and grow our consumer brand and products. Delays or unexpected costs related to the brand and cornerstone product launch and growth plans could significantly change the costs and the timing of such costs associated with our consumer products.

We expect that we will require additional funding to support the growth of our consumer brand and products and to develop and commercialize our drug product candidates. In addition, if we receive regulatory approval for any of our drug product candidates, and if we choose not to grant any licenses to partners, we expect to incur significant commercialization expenses related to product manufacturing, sales, marketing and distribution, depending on where we chose to commercialize. We also expect to incur additional costs to support our operations as well as the costs associated with operating as a public company following this offering. Until such time, if ever, as we can generate substantial product revenue, we expect to finance our cash needs through a combination of equity or debt financings or collaboration arrangements. Additional funds may not be available on reasonable terms, or at all, and such, if raised, may not be sufficient to enable us to continue to implement our long-term business strategy. If we raise funds through collaboration arrangements in the future, we may have to relinquish valuable rights to our technologies, future revenue streams or product candidates or grant licenses on terms that may not be favorable to us. If we are unable to raise funds through equity or debt financings when needed, we may be required to delay, limit, reduce or terminate development or future commercialization efforts or grant rights to develop and market our drug product candidates or consumer products that we would otherwise prefer to develop and market ourselves.

To the extent that we raise additional capital through the future sale of equity or debt, the ownership interest of our stockholders will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect the rights of our existing common stockholders.

### **Outlook**

Based on our research and development plans, our consumer brand and product launch plans and our expectations of timing related to the progress of our clinical programs, we expect that the net proceeds from this offering, together with our existing cash resources, will enable us to fund our operating expenses and capital expenditure requirements for at least the next . We have based this estimate on assumptions that may prove to be wrong, however, and we could use our capital resources sooner than we expect. Additionally, the process of testing drug product candidates in clinical trials is costly, as are the resources required to launch a consumer brand and products, and the timing of progress of these efforts is uncertain.

**Cash Flows**

	Period from February 26, 2014 (Inception) to June 30, 2014
Net cash (used in) provided by:	
Operating activities	\$ (1,262,454)
Investing activities	(34,414)
Financing activities	15,584,132
Net increase in cash	<u>\$ 14,287,264</u>

**Operating activities**

Net cash used in operating activities was \$1.3 million during the period from February 26, 2014 (inception) to June 30, 2014. Cash used in operating activities was primarily the result of operating expenses related to our research and development efforts, which included clinical study costs and personnel costs, personnel and other costs needed to support our operations and costs associated with our consumer product development.

**Investing Activities**

Net cash used in investing activities was approximately \$34,000 during the period from February 26, 2014 (inception) to June 30, 2014. The use of cash from investing activities was for the acquisition of property and equipment.

**Financing Activities**

Net cash provided by financing activities was \$15.6 million during the period from February 26, 2014 (inception) to June 30, 2014. The increase in cash provided by financing activities was the result of \$15.6 million in aggregate net proceeds received from the issuance of series A convertible preferred stock from March 2014 through May 2014.

**Contractual Obligations**

The following summarizes our significant contractual obligations as of June 30, 2014.

Contractual Obligations	Total	Less Than 1 Year	1 - 3 Years	3 - 5 Years
Operating lease obligation <sup>(1)</sup>	\$ 780,669	\$ 232,091	\$ 506,380	\$ 42,198
Total	<u>\$ 780,669</u>	<u>\$ 232,091</u>	<u>\$ 506,380</u>	<u>\$ 42,198</u>

<sup>(1)</sup> Consists of our lease agreement for an approximate 7,200 square foot facility used for administrative and research and development activities. The lease commenced on April 29, 2014 and has a 40-month term expiring August 31, 2017. We also established a letter of credit in support of this lease in the amount of \$126,595.

On October 21, 2014, we leased office space in New York, New York under an operating lease that commences on November 1, 2014 and is scheduled to expire on October 31, 2016. The future minimum lease payments are \$13,000, \$79,000 and \$70,000 for the remainder of 2014, 2015 and 2016, respectively, and are not included in the table above.

We have employment agreements with certain members of our management team that require the funding of specific payments, if certain events occur, such as the termination of employment without cause. These potential payment obligations, which in the case of our named executive officers are described in

"Executive and Director Compensation — Potential Payments Upon Termination or Change of Control," are not included in the table above.

We enter into contracts in the normal course of business with CROs for clinical studies and clinical supply manufacturing, and with vendors for research studies, research supplies and other services and products for operating purposes. These contracts generally provide for termination upon notice and do not include any minimum purchase commitments, and therefore, are cancelable contracts and not included in the table above.

We have entered into a royalty agreement with certain of our founders under which these founders will be paid a royalty of 2%, in the aggregate, of gross sales of any product sold by us or by any of our licensees for use in the treatment of any neuromuscular disorder, and that uses, incorporates or embodies (or is made using) any of our intellectual property (including any know-how). The royalty payments are not included in the table above as they have not met the recognition criteria, and the timing of these payments is not yet determinable as it is dependent upon the achievement of the earlier mentioned revenue recognition.

#### **Net Operating Loss Carryforwards**

We have deferred tax assets of \$1.0 million and deferred tax liabilities of \$0.2 million as of June 30, 2014. The deferred tax assets have been fully offset by a valuation allowance due to uncertainties surrounding our ability to realize these tax benefits. The deferred tax assets are primarily composed of a federal net operating loss, or NOL, tax carryforward. As of June 30, 2014, we have a federal NOL carryforward of \$2.2 million available to reduce future taxable income, if any. This federal NOL carryforward is available to offset future taxable income, if any, through 2034. In general, if we experience a greater than 50% aggregate change in ownership of certain significant stockholders over a three-year period, or a Section 382 ownership change, utilization of our pre-change NOL carryforwards are subject to an annual limitation under Section 382 of the Internal Revenue Code of 1986, as amended. Such limitations may result in expiration of a portion of the NOL carryforward before utilization and may be substantial. We have not conducted an assessment to determine whether there may have been a Section 382 ownership change. If we experience a Section 382 ownership change in connection with this offering or as a result of future changes in our stock ownership, some of which changes are outside of our control, the tax benefits related to the NOL carryforward may be limited or lost.

#### **Off-Balance Sheet Arrangements**

We did not have during the period presented, and we do not currently have, any off-balance sheet arrangements, as defined under SEC rules.

#### **Critical Accounting Policies and Significant Judgments and Estimates**

Our 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 accounting principles generally accepted in the United States, or GAAP. The preparation of these financial statements requires us to make estimates, judgments and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities as of the date of the balance sheet and the reported amounts of revenue and expenses during the reporting period. In accordance with GAAP, we base our estimates on historical experience and on various other assumptions that we believe are reasonable under the circumstances at the time such estimates are made. Actual results may differ materially from our estimates and judgments under different assumptions or conditions. We periodically review our estimates in light of changes in circumstances, facts and experience. The effects of material revisions in estimates are reflected in our financial statements prospectively from the date of the change in estimate.

We define our critical accounting policies as those accounting principles generally accepted in the United States that require us to make subjective estimates and judgments about matters that are uncertain and are likely to have a material impact on our financial condition and results of operations, as well as the specific manner in which we apply those principles. While our significant accounting policies are more fully described in Note 2 to our audited financial statements appearing elsewhere in this prospectus, we believe the following are the critical accounting policies used in the preparation of our financial statements that require significant estimates and judgments.

### **Research and Development**

Research and development costs are expensed as incurred. Clinical study, clinical trial and other development costs incurred by third-parties are expensed as the contracted work is performed. We accrue for costs incurred as the services are being provided by monitoring the status of the work and the invoices received from our external service providers. We adjust our accruals as actual costs become known.

### **Stock-Based Compensation**

Stock-based compensation for stock options granted to employees is measured at the date of grant based on the estimated fair value of the award, net of estimated forfeitures. We estimate the grant date fair value and the resulting stock-based compensation expense using the Black-Scholes option pricing model. The grant date fair value of stock-based awards is recognized as an expense over the requisite service period of the award on a straight-line basis. For stock awards to employees, such as the restricted stock sold to one of our founders and Chief Executive Officer, if the fair market value of the stock exceeds the sale price, the excess is expensed as stock-based compensation over the requisite service period.

Stock-based awards issued to non-employees, including stock options and restricted stock, are recorded at their fair values, and are periodically revalued as the equity instruments vest and are recognized as expense over the related service periods on a straight-line basis. The fair value of options granted to non-employees is measured using the Black-Scholes option pricing model reflecting an expected life that is assumed to be the remaining contractual term of the option. The fair value of stock awards is based upon the fair value of the Company's common stock.

We recorded total non-cash stock-based compensation expense to employees and non-employees of \$0.3 million for the period from February 26, 2014 (inception) to June 30, 2014. At June 30, 2014, we had \$4.4 million total unrecognized compensation cost related to non-vested equity awards. Total unrecognized compensation cost will be adjusted for the re-measurement of non-employee awards as well as future changes in employee and non-employee forfeitures, if any. We expect to recognize that cost over a remaining weighted-average period of 3.67 years. We expect our stock-based compensation expense to grow in future periods due to potential increases in the value of our common stock and increased number of awards granted to employees and non-employees.

On April 9, 2014 and May 19, 2014, we granted stock options for 827,000 and 730,000 shares of our common stock, respectively. At the grant dates, our board of directors determined that the fair value of our common stock was \$0.14 and \$0.18 per share, respectively, based on a valuation analysis performed on or around each of those dates.

The intrinsic value of all outstanding options as of June 30, 2014 was approximately \$                      million based on the assumed initial public offering price of \$                      per share, which is the midpoint of the price range set forth on the cover page of this prospectus, of which approximately \$                      million related to vested options and the remainder related to unvested options. We expect to continue to grant stock options in the future, and, to the extent that we do, our actual stock-based compensation expense recognized in future periods will increase.



### Determining fair value of stock options

Our Black-Scholes option-pricing model requires the input of highly subjective assumptions, including the fair value of the underlying common stock, the expected volatility of the price of our common stock, the expected term of the option, risk-free interest rates and the expected dividend yield of our common stock. These estimates involve inherent uncertainties and the application of management's judgment. If factors change and different assumptions are used, our stock-based compensation expense could be materially different in the future. These assumptions are estimated as follows:

- **Fair value of our common stock** — Because our stock was not publicly traded prior to our initial public offering, we estimated the fair value of our common stock, as discussed below. Upon the completion of our initial public offering, our common stock will be valued by reference to the publicly-traded price of our common stock.
- **Risk-free interest rate** — The risk-free interest rate is based on the yields of U.S. Treasury securities with maturities similar to the expected term of the options for each option group.
- **Expected term** — The expected term represents the period that our stock-based awards are expected to be outstanding.
- **Expected volatility** — As we do not have a significant trading history for our common stock, the expected stock price volatility for our common stock was estimated by taking the volatility for industry peers over a period equivalent to the expected term of the stock option grants. We intend to continue to consistently apply this process using the same or similar public companies until a sufficient amount of historical information regarding the volatility of our own common stock share price becomes available.
- **Expected dividend yield** — We have never declared or paid any cash dividends and do not presently plan to pay cash dividends in the foreseeable future. Consequently, we used an expected dividend yield of zero.

The following table presents the weighted-average assumptions used to estimate the fair value of options granted during the period presented:

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	Period from February 26, 2014 (Inception) to June 30, 2014
Expected volatility	76.4%
Risk-free interest rate	1.83% to 2.71%
Expected term	6 - 10 years
Expected dividend yield	0%

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We will continue to use judgment in evaluating the assumptions utilized for our stock-based compensation expense calculations on a prospective basis.

In addition to the assumptions used in the Black-Scholes option-pricing model, the amount of stock-based compensation expense we recognize in our financial statements includes an estimate of stock option forfeitures. We are required to estimate forfeitures at the time of grant, and revise those estimates in subsequent periods if actual forfeitures differ from its estimates. We record stock-based compensation expense only for those awards that are expected to vest. To the extent that actual forfeitures differ from our estimates, the differences are recorded as a cumulative adjustment in the period the estimates were revised.

Our board of directors determined the fair value of our common stock considering, in part, the work of an independent third-party valuation specialist. The board determined the estimated per share fair value of our

common stock at various dates considering valuations performed in accordance with the guidance outlined in the American Institute of Certified Public Accountants Practice Aid, Valuation of Privately-Held Company Equity Securities Issued as Compensation, or Practice Aid. Following the consummation of this offering, the fair value of our common stock will be determined based on the quoted market price of our common stock. In conducting the valuations, the independent third-party valuation specialist considered all objective and subjective factors that it believed to be relevant for each valuation conducted in accordance with the Practice Aid, including our best estimate of our business condition, prospects and operating performance at each valuation date. Other significant factors included:

- Our operating and financial performance, including our levels of available capital resources;
- Our stage of development;
- Current business conditions and projections;
- Trends and developments in our industry;
- The valuation of publicly traded companies in our sector, as well as recently completed mergers and acquisitions of peer companies;
- The rights, preferences and privileges of our common stock compared to the rights, preferences and privileges of our other outstanding equity securities;
- Equity market conditions affecting comparable public companies, as reflected in comparable companies' market multiples, initial public offering valuations and other metrics;
- U.S. and global economic and capital market conditions;
- The likelihood of achieving a liquidity event for the shares of common stock, such as an initial public offering or an acquisition of our company given prevailing market and sector conditions;
- The illiquidity of our securities by virtue of being a private company;
- Business risks; and
- Management and board experience.

We engaged an independent third-party valuation specialist to perform contemporaneous valuations on or around the dates of our option grants as well as June 30, 2014. We also engaged the valuation specialist to perform a retrospective valuation as of June 30, 2014. The valuations we obtained were prepared in accordance with the guidelines in the Practice Aid, which prescribes several valuation approaches for setting the value of an enterprise, such as the cost, market and income approaches, and various methodologies for allocating the value of an enterprise to its common stock. In accordance with the Practice Aid, we considered the various methods for allocating the enterprise value across our classes and series of capital stock to determine the fair value of our common stock at each valuation date.

The following table illustrates our stock option grant information from February 26, 2014 (inception) through June 30, 2014, including the estimated fair value of our common stock on the date of grant:

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<b>Grant Date</b>	<b>Number of Shares Subject to Options Granted</b>	<b>Option Exercise Price</b>	<b>Estimated Fair Value of Common Stock per Share at Date of Grant</b>
April 9, 2014	827,000	\$ 0.14	\$ 0.14
May 19, 2014	730,000	\$ 0.18	\$ 0.18

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For the stock options granted in April 2014 and May 2014, the cost-based approach was used to determine the fair value of the common stock. The use of the cost-based approach was based upon our lack of operating history at those points in time, uncertainty regarding our products and their development and our likelihood of success. Based on these facts, the fair value of equity was deemed equivalent to the investment value of the series A convertible preferred stock issued as of the respective valuation dates.

Given the uncertainty of our future and the expected time to liquidity as of the valuation dates, the equity values were then allocated to the various share classes using the Option Pricing Method, or OPM. The OPM is a commonly used methodology for allocating value between multiple classes of securities (e.g., preferred and common stock, options and warrants) especially when the future potential exits are highly uncertain or unclear and/or additional financing will be needed to reach a successful exit.

In order to account for awards to non-employees and establish a fair market value for stock option awards in early July of 2014, we performed a valuation as of June 30, 2014. The June 30, 2014 valuation was performed using the market approach, specifically the OPM backsolve. The OPM backsolve estimates a total value of equity that is consistent with a recent arm's length transaction given the rights and preferences of each of the classes of equity and the expected time to a liquidity event. This valuation took into account the expected purchase price of the series B convertible preferred stock based on the information, specifically the terms and conditions, known as of the June 30, 2014 valuation date. The use of the expected series B convertible preferred stock financing in the OPM backsolve was done in order to take into account the positive clinical studies results received by us in late-May 2014 and early-June 2014. Those results were a significant development in regards to our consumer product as well as the potential for a drug product candidate. Based upon this valuation, the fair value of the common stock was determined to be \$0.87 per share.

In September 2014, based on overall capital market conditions, and the market for biopharmaceutical initial public offerings, our board of directors directed management to begin preparation and submission of a confidential draft registration statement for an initial public offering. For all option grant dates subsequent to September 2014, the date at which we began preparation and submission of a confidential draft registration statement for an initial public offering, the valuations of our common stock are based on a hybrid method, or Hybrid Method. The Hybrid Method is a hybrid between Probability-Weighted Expected Return Method, or PWERM and OPM, estimating the probability weighted value across multiple scenarios, but using OPM to estimate the allocation of value within one or more of those scenarios. The Hybrid Method can be a useful alternative to explicitly modeling all PWERM scenarios in situations where the company has transparency into one or more near term exits, in our case an initial public offering, but is unsure about what will occur if the anticipated exit does not occur.

There is inherent uncertainty in these estimates, and if we had made different assumptions than those used, the amount of our stock-based compensation expense, net loss and net loss per share amounts could have been significantly different. Following the closing of this offering, the fair value per share of our common stock for purposes of determining stock-based compensation expense will be the closing price of our common stock as reported on the applicable grant date.

### **Implications of being an emerging growth company**

As a company with less than \$1.0 billion in revenue from February 26, 2014 (inception) to June 30, 2014, we qualify as an "emerging growth company" as defined in Section 2(a) of the Securities Act of 1933, as amended, or the Securities Act, as modified by the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. As an emerging growth company, we may take advantage of specified reduced disclosure and other requirements that are otherwise applicable, in general, to public companies that are not emerging growth companies. These provisions include:

- reduced disclosure about our executive compensation arrangements;
- no non-binding stockholder 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 if we have more than

\$1.0 billion in annual revenues as of the end of any fiscal year, if we are deemed to be a large accelerated filer under the rules of the Securities and Exchange Commission, or SEC, or if we issue more than \$1.0 billion of non-convertible debt over a three-year period.

The JOBS Act permits an emerging growth company to take advantage of an extended transition period to comply with new or revised accounting standards applicable to public companies. We are choosing to "opt out" of this provision, and this decision is irrevocable.

#### **Quantitative and Qualitative Disclosures about Market Risk**

The market risk inherent in our financial instruments and in our financial position represents the potential loss arising from adverse changes in interest rates. As of June 30, 2014, we had cash of \$14.3 million. We generally hold our cash in bank deposit, interest-bearing accounts. Our primary exposure to market risk is interest rate sensitivity, which is affected by changes in the general level of U.S. interest rates. An immediate 100 basis point change in interest rates would not have a material effect on the fair market value of our cash.

## BUSINESS

### Overview

We are a biopharmaceutical company that is developing innovative and proprietary treatments for nocturnal leg cramps and spasms associated with severe neuromuscular conditions. Our founders' novel insights regarding neuromuscular physiology form the basis of our development efforts. We believe that activation of certain receptors in primary sensory neurons reduces the repetitive firing, or hyperexcitability, of alpha-motor neurons, thereby preventing or reducing the frequency and intensity of muscle cramps and spasms. We also believe that we are the only company developing products based on this mechanism of muscle cramp inhibition. We have conducted three randomized, blinded, placebo-controlled cross-over studies of our proprietary treatment, which have shown a statistically significant reduction in the intensity of muscle cramps induced in healthy normal volunteers. We intend to initially focus our drug development efforts on developing a product to treat nocturnal leg cramps. There is no drug product currently available in the United States that has been approved to treat nocturnal leg cramps. We estimate, based on independent third-party survey results, that approximately four million U.S. adults over the age of 65 suffer from nocturnal leg cramps on a daily basis. In the second quarter of 2015, we intend to initiate at least one human proof-of-concept study of our proprietary treatment for individuals with nocturnal leg cramps.

A muscle cramp is a sudden, painful contraction of a muscle that can last several minutes and, in many instances, results in soreness lasting several days. Spasticity is an abnormal, involuntary tightness of muscles including uncontrolled movement, muscle stiffness, difficulty straightening joints, reduced mobility, limb weakness, shaking and pain. We believe that muscle cramps and spasms result from the hyperexcitability of alpha-motor neurons. Our proprietary treatment, which forms the basis of both our drug product and consumer product development efforts, activates the transient receptor potential, or TRP, cation channel receptors in primary sensory neurons in the spinal cord, which enhances overall inhibitory tone in motor neurons throughout the body. In doing so, we believe our proprietary treatment reduces alpha-motor neuron hyperexcitability, thereby preventing muscle cramps and spasms. We believe the results from the studies of our proprietary treatment in healthy normal volunteers have validated our approach of using TRP activators to relieve muscle cramps and spasms. We protect our technology through a combination of patents, trade secrets and proprietary know-how, and we intend to seek marketing exclusivity for any approved drug products.

Nocturnal leg cramps are muscle cramps that occur during sleep and can cause distress, interrupted sleep, reduced quality of life and interference with activities of daily living. The prevalence of nocturnal leg cramps is widespread and increases with age. We believe our primary target patient population will include individuals that suffer from nocturnal leg cramps daily or weekly and, based on independent third-party survey results, estimate that approximately four million U.S. adults over the age of 65 suffer from nocturnal leg cramps on a daily basis. Nocturnal leg cramps also affect people younger than 65 and we believe there is an opportunity to serve this patient population as well. Stretching and systemic treatments, including dietary supplements, vasodilators and calcium channel blockers, have shown some limited benefit in treating nocturnal leg cramps but these treatments lack durable evidence of clinical efficacy. In the second quarter of 2015, we plan to initiate at least one human proof-of-concept study to evaluate the efficacy and tolerability of our proprietary treatment in individuals suffering from nocturnal leg cramps. The protocol for our proposed study in the United States has been accepted by an institutional review board, or IRB, and we will submit a protocol to a local ethics committee, in each of the United Kingdom and Australia.

We may also initiate human proof-of-concept studies of our proprietary treatment in patients outside the United States that suffer from spasms associated with severe neuromuscular conditions and other conditions where patients experience abnormal muscle contractions, including multiple sclerosis, cervical dystonia and spinal cord injury, or SCI. According to the National Institute of Neurological Disorders and Stroke, between 250,000 and 350,000 people in the United States suffer from multiple sclerosis, or MS, approximately 84% of whom experience spasticity. According to the National Spasmodic Torticollis

Association, cervical dystonia affects approximately 90,000 people in the United States and we estimate, based on industry sources, that spasticity following spinal cord injury, affects at least 150,000 people in the United States.

We are also developing a consumer brand with products based on the same mechanism of action as our proprietary treatment. Our consumer brand and products will be targeted towards athletes experiencing exercise-associated muscle cramps, or EAMCs. EAMCs are painful, spasmodic and involuntary contractions of skeletal muscle that occur during or following exercise in individuals with no underlying metabolic, neurological or endocrine pathology. EAMCs can be experienced by individuals participating in any sport but are particularly prevalent in athletes engaging in high-intensity activities, such as running, cycling and triathlons. There are a number of well-known sports drinks and other consumer products used to prevent EAMCs. However, we do not believe any of these products have been proven to be clinically effective in preventing EAMCs. We have commenced formulation and commercialization efforts of our cornerstone consumer product to address this attractive market, and we anticipate launching our consumer brand and cornerstone product in the first quarter of 2016.

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### Drug Product Candidates

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<u>Target Indications</u>	<u>Current Development Status</u>	<u>Future Development Plans</u>
Nocturnal leg cramps	<ul style="list-style-type: none"><li>• Initiating at least one human proof-of-concept, or POC, study of our proprietary treatment in the second quarter of 2015</li><li>• Evaluating initiation of one or more POC studies of our proprietary treatment for one or more indications</li></ul>	<ul style="list-style-type: none"><li>• Phase 2 registration-directed clinical trial of drug product candidates if results from one or more POC studies are favorable</li><li>• Phase 2 clinical trial of drug product candidates if results from POC studies are favorable</li></ul>
MS spasticity, cervical dystonia and/or SCI spasticity		

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### Consumer Product

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<u>Target Market</u>	<u>Current Development Status</u>	<u>Future Development Plans</u>
Exercise-associated muscle cramps, or EAMCs	<ul style="list-style-type: none"><li>• Formulation and launch efforts underway</li></ul>	<ul style="list-style-type: none"><li>• Anticipated launch of our consumer brand and cornerstone product in the first quarter of 2016</li></ul>

### Recent Financings

Since inception, we have financed our operations through a series of private placements of our series A and series B convertible preferred stock with several investors, including Bessemer Venture Capital, EcoR1 Capital, Jennison Associates, Lightstone Ventures and the Longwood Fund, providing total net proceeds of \$41.0 million.

Under the terms of the series A convertible preferred stock purchase agreement entered into in March 2014, we issued and sold an aggregate of 15,775,221 shares of our series A convertible preferred stock in a series of closings from March 2014 through May 2014. Under the terms of the series B convertible preferred stock purchase agreement entered into in July 2014, we issued and sold an aggregate of 14,078,647 shares of our series B convertible preferred stock in a series of closings from July 2014 through October 2014. All of our outstanding shares of series A and series B convertible preferred stock will be converted into shares of our common stock on a one-for-one basis upon the closing of this offering.

## Our Leadership Team and Scientific Advisors

Our company is led by our scientific co-founders, Roderick MacKinnon, M.D. and Bruce Bean, Ph.D., and our President, Chief Executive Officer and Chairman, Christoph Westphal, M.D., Ph.D. Dr. MacKinnon, a member of the National Academy of Sciences, was awarded the Nobel Prize in Chemistry in 2003 for his work on ion channel activation, the foundation of our approach to preventing muscle cramping. Dr. Bean is a member of the National Academy of Sciences and the Robert Winthrop Professor of Neurobiology at Harvard Medical School, where he oversees a leading research laboratory studying the biophysics of sodium, calcium and potassium ion signaling in relation to pain processing. Dr. Westphal has co-founded and served as the Chief Executive Officer of several biotechnology companies, including Alnylam Pharmaceuticals, Inc., Acceleron Pharma Inc., Sirtris Pharmaceuticals, Inc., Momenta Pharmaceuticals, Inc. and Verastem, Inc. Dr. Westphal also co-founded Alnara Pharmaceuticals, Inc., OvaScience, Inc. and Concert Pharmaceuticals, Inc.

Our management team also includes:

Jennifer Cermak, Ph.D., *Vice President of Program Management*

Research and development experience in new product development, candidate selection and first-in-man through Phase 4 global clinical trials, serving as a member of Sirtris Pharmaceuticals' executive management team and in leadership positions at Pfizer, GlaxoSmithKline and United Therapeutics

Robert Hadfield, *General Counsel*

Broad experience advising companies on securities law compliance, corporate governance matters and mergers and acquisitions as an attorney at Cooley LLP and as a financial analyst at SG Cowen

Marina Hahn, *President of Consumer Goods*

Extensive experience developing and building consumer brands, including serving as Chief Marketing Officer of Spirits Marque One LLC, makers of SVEDKA vodka, and a division of Constellation Brands

John McCabe, *Vice President of Finance*

Over 20 years of experience leading global finance, accounting and administrative operations, including positions at ARIAD Pharmaceuticals, Charles River Associates and Biogen Idec

Elizabeth Woo, *Vice President of Investor Relations and Corporate Communications*

Over 20 years of experience in investor relations, biotechnology and pharmaceuticals, previously serving as Vice President of Investor Relations for Biogen Idec and as an investor relations consultant to Ironwood Pharmaceuticals and Cubist Pharmaceuticals

Our team is supported by our scientific advisory board comprised of leading academic and industry scientists:

Roderick MacKinnon, M.D., *Scientific Co-Founder and Chair*

Investigator at Howard Hughes Medical Institute and the John D. Rockefeller Jr. Professor, Laboratory of Molecular Neurobiology and Biophysics at the Rockefeller University, member of the National Academy of Sciences

Bruce Bean, Ph.D., *Scientific Co-Founder and Chair*

Robert Winthrop Professor of Neurobiology at Harvard Medical School and member of the National Academy of Sciences

David Julius, Ph.D.

Professor and Chair, Department of Physiology, University of California, San Francisco. Member of the National Academy of Sciences and the Institute of Medicine. Discovered the TRPV1 ion channel

Christopher Walsh, Ph.D.

Hamilton Kuhn Professor in the Department of Biological Chemistry and Molecular Pharmacology at Harvard Medical School. Member of the National Academy of Sciences and the Institute of Medicine

Peter Elliott, Ph.D.

Former Head of Research and Development of Sirtris Pharmaceuticals, Inc., former Vice President of Pharmacology and Drug Development of Millennium Pharmaceuticals, Inc. and co-developer of Velcade

Roger Tung, Ph.D.

President and Chief Executive Officer of Concert Pharmaceuticals, Inc., former Vice President of Drug Discovery of Vertex Pharmaceuticals, Inc. and co-inventor of Lexiva and Agenerase. Oversaw the development Incivek and Kalydeco

## **Our Strategy**

Our strategy is to become a leading biopharmaceutical company focused on treating muscle cramps and spasms associated with severe neuromuscular conditions in areas of significant unmet need. We intend to develop products using TRP activators, leveraging our experienced management team and our relationships with top scientific advisors to expedite our drug and consumer product development efforts. The key elements of our strategy are as follows:

- *Rapidly develop and advance our drug product candidates for the treatment of nocturnal leg cramps.* We believe the nocturnal leg cramp market represents a significant opportunity that historically has been underserved. There is no drug currently approved in the United States for the treatment of nocturnal leg cramps. In the second quarter of 2015, we expect to initiate at least one human proof-of-concept study of our proprietary treatment in individuals suffering from nocturnal leg cramps. We are currently developing drug product candidates for the treatment of nocturnal leg cramps and, if the results of one or more of our human proof-of-concept studies are favorable, intend to initiate a Phase 2 registration-directed clinical trial.
- *Expand our drug development efforts into severe neuromuscular conditions of significant unmet need.* We believe drug products based on the TRP activators used in our proprietary treatment may relieve spasticity and abnormal muscle contractions affecting individuals suffering from severe neuromuscular conditions. We are currently evaluating the initiation of human proof-of-concept studies of our proprietary treatment in patients that suffer from multiple sclerosis spasticity, cervical dystonia and spasticity associated with spinal cord injury.



- *Develop and launch our consumer brand and products for the prevention of EAMCs.* We intend to develop a consumer brand and products specifically formulated to treat athletes suffering from EAMCs. To lead this effort, we have hired Marina Hahn as our President of Consumer Goods, who has extensive experience developing and building consumer brands. In the first quarter of 2016, we expect to begin selling the cornerstone product of our consumer brand, which will be a beverage marketed to athletes engaging in high-intensity sports where muscle cramping is prevalent. As our brand and target market evolves, we anticipate evaluating product line extension opportunities. The breadth of our consumer products will depend on a variety of factors, including brand positioning, target audience and product formulation alternatives. Additionally, we will consider partnering with established consumer brand companies following our initial launch to accelerate market acceptance of our consumer products.
- *Collaborate selectively to augment and accelerate our research, development and commercialization efforts.* We may seek third-party collaborators for the development and eventual commercialization of any drug product candidate we develop. In particular, we may enter into third-party arrangements for targeted neuromuscular indications in which our potential collaborator has particular expertise or for which we need access to additional research, development or commercialization resources.
- *Pursue the acquisition or in-licensing of product candidates.* We may enhance our product pipeline through strategically acquiring or in-licensing pre-clinical or clinical stage product candidates. We believe that our management team and scientific advisory board's expertise in neuronal circuits experience may make us an attractive partner for companies seeking to out-license products or develop product candidates in this area of focus.

## **Market Opportunity**

We are developing products for the treatment of muscle cramps including nocturnal leg cramps, spasms associated with severe neuromuscular conditions and other conditions where patients experience abnormal muscle contractions. A muscle cramp is a sudden and painful contraction of a muscle that may last several minutes and, in many instances, results in soreness lasting several days. Spasticity, which is frequently experienced by patients with severe neuromuscular conditions, such as multiple sclerosis and as the result of SCI, is an abnormal, involuntary tightness of muscles and is characterized by uncontrolled movement, muscle stiffness, difficulty straightening joints, reduced mobility, limb weakness, shaking, intermittent spasms and pain. Dystonias are characterized by sustained or intermittent muscle contractions causing abnormal, often repetitive, movements, postures, or both. The treatment of muscle cramps remains challenging because we do not believe there is any product that has been rigorously proven to be effective in treating muscle cramps. Many products intended to treat spasms and dystonias are not available to all patients and are generally limited by unwanted side effects. We believe there is a large and underserved markets for effective treatment of muscle cramps and spasms as a result of the limitations of the current standard of care.

### **Nocturnal Leg Cramps**

*Background.* Nocturnal leg cramps are muscle cramps, usually occurring in the calf during sleep, that cause pain, stress, disability and poor sleep quality in affected individuals resulting in reduced quality of life and interference with activities of daily living. The causes of nocturnal leg cramps remain unknown but are related to various conditions such as inactivity, overexertion, peripheral artery disease, metabolic problems, certain medications and spinal stenosis. The prevalence of nocturnal leg cramps is widespread and increases with age. According to a survey of 233 individuals, 37% of adults over the age of 50 suffered from nocturnal leg cramps. Based on a separate survey of 365 individuals, 50% of adults over the age of 65 suffered from nocturnal leg cramps. We believe our primary target patient population will include individuals that suffer from nocturnal leg cramps daily or weekly and, based on independent third-party survey results, estimate that approximately four million U.S. adults over the age of 65 suffer from nocturnal leg cramps on a daily basis. Nocturnal leg cramps also affect people younger than 65 and we believe there is an opportunity to serve this patient population as well. In the United Kingdom, quinine is prescribed for the treatment of nocturnal leg cramps, in addition to being a treatment for malaria. In 2013, approximately

4.5 million quinine prescriptions were written for patients in the United Kingdom, a country with approximately one-fifth the population of the United States. We believe a majority of these prescriptions were for the treatment of individuals suffering from nocturnal leg cramps.

*Limitations of Current Treatment.* We do not believe any therapy has been shown to be safe and effective in treating nocturnal leg cramps in well-designed, blinded clinical trials. Stretching and systemic treatments, such as dietary supplements, vasodilators and calcium channel blockers, have shown some benefit in treating nocturnal leg cramps, but we do not believe any medication has shown durable evidence of clinical efficacy. Quinine is prescribed in the United Kingdom for the treatment of nocturnal leg cramps. However, quinine is associated with serious and life-threatening adverse events, including thrombocytopenia, hypersensitivity reactions and QT prolongation. In 1994, the U.S. Food and Drug Administration, or the FDA, banned the use of over-the-counter quinine for the treatment of leg cramps and reinforced this view for prescription quinine products in 2006. Notwithstanding its ban, the FDA estimated that approximately 206,000 and 51,800 patients continued to be prescribed quinine in 2008 and 2011, respectively, the majority of which were associated with off-label indications relating to leg cramps and muscle pain.

### **Multiple Sclerosis Spasticity**

*Background.* MS is an autoimmune disease where the nerves of the patient's brain and spinal cord are damaged by the immune system, resulting in a loss of muscle control, sensation and vision. Spasticity is caused by damage to the brain and spinal cord by MS. This imbalance causes hyperactive muscle stretch reflexes, which result in involuntary contractions of the muscle and increased muscle tension. While spasticity can be useful in the earlier stages of MS to assist ambulation, the need to treat spasticity increases as the disease progresses in order to prevent contracture, bed sores and severe pain. According to the National Institute of Neurological Disorders and Stroke, between 250,000 and 350,000 people in the United States suffer from MS and approximately 84% of patients with MS experience spasticity.

*Limitations of Current Treatment.* Patients suffering from MS spasticity may be treated with muscle relaxants, sedatives and Botox injections, which frequently result in unwanted side effects, including dizziness, drowsiness, dry mouth, fatigue, weakness, diarrhea or constipation and low blood pressure. Further, patient responses to single or combination agents vary and treatments may be incomplete in managing spasticity.

### **Cervical Dystonia**

*Background.* Also known as spasmodic torticollis, cervical dystonia is a painful and debilitating neurological movement disorder. Cervical dystonia is characterized by sustained or intermittent muscle contractions causing abnormal, often repetitive, movements or postures. The patient's head may turn to the right or left (torticollis), may tilt to one side (laterocollis), or may tilt upwards (retrocollis) or downwards (anterocollis). Patients may also experience spasmodic jerking of the head. The causes of cervical dystonia are unknown. Cervical dystonia affects approximately three in every 10,000 people, or about 90,000 people in the United States, according to the National Spasmodic Torticollis Association.

*Limitations of Current Treatment.* Botox injection is the most commonly used treatment for cervical dystonia and while Botox can provide significant relief, it may result in side effects that include weakness, difficulty swallowing or speaking, flu-like symptoms, pain and bruising. The effectiveness of Botox therapy may be limited by the skill of the injector at isolating muscles and the accessibility of the affected muscle to treatment.

### **Spasticity as a Result of Spinal Cord Injury**

*Background.* Spasticity commonly occurs following spinal cord injury, or SCI, and results from injury to the upper motor neurons within the central nervous system, or CNS. SCI spasticity may cause pain and fatigue and can impede rehabilitation efforts. There are approximately 273,000 people in the United States with SCI and between 65% and 78% of individuals with chronic spinal cord injury have symptoms of spasticity. Based on these patient populations, we estimate that at least 150,000 people in the United States suffer from SCI spasticity.

**Limitations of Current Treatment.** Depending on the severity, SCI spasticity is treated with physical therapy, including surface electrical stimulation, surgery or drug therapy, including muscle relaxants, sedatives and Botox injection. These treatments are sometimes unavailable to patients with severe forms of spasticity and patients receiving these treatments may experience side effects that include weakness, sedation, nausea, malaise, dry mouth or dizziness.

### **Other Potential Indications**

We may also pursue the use of our drug product candidates in several other conditions where muscle cramps, spasms or abnormal muscle contractions afflict patients, including amyotrophic lateral sclerosis, spasms due to brain injury such as in stroke or cerebral palsy or trauma, focal dystonias (e.g. blepharospasm), peripheral neuropathy (e.g. diabetic), fibromyalgia, hereditary spastic paraplegia, cramp fasciculation syndrome, cramps due to dialysis, spasmodic dysphonia, hypomagnesemia, hypocalcemia, piriformis syndrome, lower lumbar radiculopathy and neuromyotonias (focal).

### **Exercise-Associated Muscle Cramp**

**Background.** We are also developing a consumer brand with products to prevent exercise-associated muscle cramps, or EAMCs. EAMCs are painful, involuntary contraction of a skeletal muscle that occurs during or following exercise in individuals and result in acute pain, stiffness, bulging or knotting of the muscle and soreness that can last for several days. EAMCs can be experienced by individuals participating in any sport, but EAMCs are particularly prevalent in athletes engaged in high-intensity activities, such as triathlons, marathons and cycling events. Our cornerstone consumer product will be directed towards endurance athletes participating in these types of high-intensity sports.

**Limitations of Current Products.** There are a number of well-known sports drinks and other consumer products that are intended to treat electrolyte abnormalities and dehydration. However, we do not believe clinical studies have proven that these factors, in isolation, cause EAMCs. Scientists recently began hypothesizing that altered neuromuscular control, as a result of muscle fatigue, causes EAMCs. Our cornerstone product will include TRP activators that reduce alpha-motor neuron hyperexcitability caused by muscle fatigue, thereby preventing muscle cramps. We believe endurance athletes participating in high-intensity sports want a product that has been shown to be clinically effective and that may provide a competitive advantage.

### **Our Scientific Approach**

Recent research has shown that muscle cramping is caused by the uncontrolled and repetitive firing of alpha-motor neurons in the spinal cord, resulting in maintained contraction of the muscle. We believe that by reducing this firing of the alpha-motor neurons that control muscle contraction, muscle cramping can be reduced or prevented.

Motor neurons respond to inputs from complex circuits in the spinal cord that both (A) reduce neuronal and muscle activity, known as "inhibitory" input, and (B) increase neuronal and muscle activity, known as "excitatory" input. Our approach exploits a general principle of neural circuits: that strong excitatory input from one source in the body enhances overall inhibitory tone in the spinal cord and thereby reduces neuronal response to other excitation throughout the body.

The activation of ion channels forms the basis of our scientific approach and members of our scientific advisory board are leaders in this field. Our co-founder, Roderick MacKinnon, M.D., was awarded the Nobel Prize in 2003 for his work determining the structure of ion channels and showing the mechanism by which they select for particular ions (Doyle, et al., *The Structure of the Potassium Channel: Molecular Basis of K<sup>+</sup> Conduction and Selectivity*, April 1998, *Science*). David Julius, Ph.D., a member of our scientific advisory board, first described the TRP vanilloid-1, or TRPV1, receptor and illustrated the importance this ion channel played in diverse physiological functions (Caterina, et al., *The capsaicin receptor: a heat-activated ion channel in the pain pathway*, October 1997, *Nature*). In particular, the TRPV1 ion channel acts as a receptor that reacts to multiple sensory inputs. TRPV1 is activated by heat, low pH and a variety of

molecules, including gingerols and capsaicinoids, which are responsible for the heat sensation from chili peppers and other "spicy" foods.

The TRP subfamily A, member 1, or TRPA1, ion channel is a channel in the cell membrane that can be activated by a wide variety of stimuli, including cold temperature and a variety of pungent chemical agents such as ginger, cinnamon and mustard oil. TRPA1 ion channels are expressed mainly in primary sensory neurons associated with slow-conducting C-fibers and carry signals directly to the spinal cord.

Our proprietary treatment stimulates primary sensory neurons in the mouth, esophagus and stomach by activating TRPV1 and TRPA1 ion channels. These sensory neurons project both directly and indirectly to the spinal cord, and we believe that their activation enhances the overall inhibitory tone in spinal cord circuits, which reduces repetitive firing of the alpha-motor neurons throughout the body and thereby prevents or reduces the frequency and intensity of muscle cramps and spasms. Muscle contractions associated with dystonia and spasticity are also believed to result from abnormal repetitive firing of alpha-motor neurons.

Our proprietary treatment contains three active ingredients that the FDA has deemed to be generally recognized as safe, or GRAS, when used in ingested food: (1) ginger extract, an activator of both TRPV1 and TRPA1 ion channels, (2) cinnamon extract, an activator of TRPA1 ion channels, and (3) capsicum, an activator of TRPV1 ion channels. Our proprietary treatment stimulates TRP channels located in the mouth, esophagus and stomach, activating receptors in the gastrointestinal tract. We believe that the effects of the TRP activators in our proprietary treatment directly interact with TRPA1 and TRPV1 ion channels in a topical and local fashion to yield strong, centrally-acting excitatory inputs from peripheral sensory neurons. The signals activated in the TRPA1 and TRPV1 ion channels are channeled directly to the spinal cord, creating an inhibitory effect from the central nervous system on alpha-motor neurons throughout the body, thereby reducing neuron excitation and muscle cramps. Moreover, we believe that the physical properties of the TRP activators largely limit their action to sensory neurons in the mouth, esophagus and stomach, with minimal concentrations reaching the bloodstream and, consequently, fewer potential systemic side-effects.

## **Clinical Development**

### ***Clinical Studies***

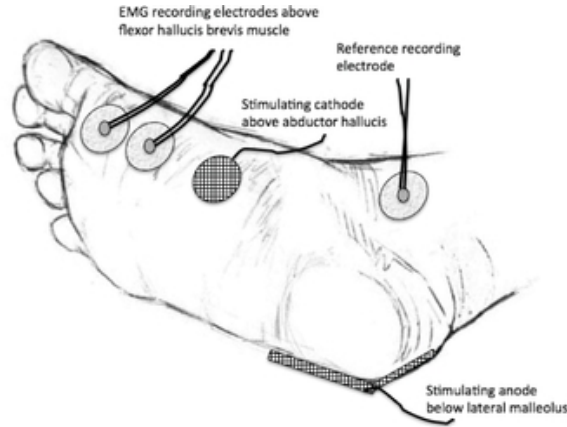
In 2014, we completed three randomized, blinded, placebo-controlled cross-over studies, which we refer to as Flex-001, Flex-002 and Flex-003, of our proprietary treatment in a total of 37 healthy normal volunteers. In each study, our proprietary treatment showed statistical significance in reducing muscle cramps as compared to vehicle control, with good safety and tolerability, which supports our belief that TRP activation can dampen the repetitive firing of alpha-motor neurons to prevent or reduce muscle cramps.

We have studied the effectiveness of our proprietary treatment in preventing electrically induced muscle cramps in healthy normal volunteer studies without submitting an IND to the FDA. Previous studies have shown a correlation between electrically induced cramping and individual susceptibility to naturally occurring cramping. As a result, we believe that the use of our electrically induced muscle cramping technique is an effective tool for understanding the pathogenesis and treatment of naturally occurring muscle cramping. Our proprietary treatment demonstrated statistical significance in reducing the intensity of electrically induced muscle cramps in each of our three studies and we believe that our proprietary treatment has the potential to prevent naturally occurring muscle cramping such as nocturnal leg cramps and EAMCs.

### Testing Procedures and Clinical Study Design

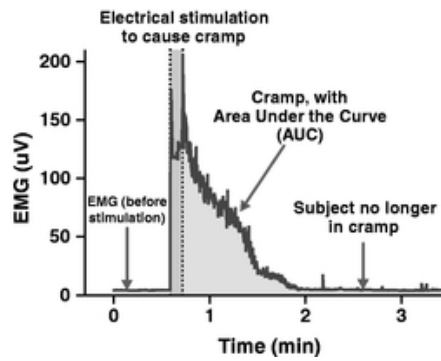
In each study, we induced muscle cramping in the flexor hallucis brevis muscle, (a small muscle on the bottom of the hallux (big toe), using electrical stimulation and then measured the duration and intensity of the subject's cramp using electromyography, or EMG. EMG is a technique used for evaluating and recording the electrical activity produced by skeletal muscles and produces a record called an electromyogram. During our clinical studies, a stimulating electrode was placed on the sole of the foot over the abductor hallucis muscle and recording sensors were attached to the flexor hallucis brevis muscle (see Figure 1). The subject's abductor hallucis muscle and medial plantar nerve were stimulated, which induced a muscle cramp. We then measured muscle cramp intensity and duration using EMG recording sensors.

**Figure 1**



To measure a subject's muscle cramp, we calculated the area under the curve, or AUC, produced by the electromyogram as depicted in Figure 2. Muscle cramp intensity and duration vary by subject, so each study began by inducing a cramp in each subject in order to create a "baseline AUC." This baseline AUC was later compared to the AUC after the subject received either our proprietary treatment or a vehicle control without active ingredients. The time at which the subject receives our proprietary treatment or vehicle control is referred to as timepoint zero. We then attempted to induce muscle cramps using electrical stimulation at various times following timepoint zero. At each timepoint, we measured the subject's cramp intensity and duration using the EMG recording sensors and then compared each AUC against the baseline AUC. We believe that if a subject's AUC at the subsequent timepoints was smaller than the subject's baseline AUC, then our proprietary treatment successfully prevented or reduced the intensity of the subject's muscle cramp.

**Figure 2**



In each study the subjects were pre-screened for overall general health based on the study protocol's inclusion and exclusion criteria. To be included in the study, each subject must have had a toe cramp successfully induced by us.

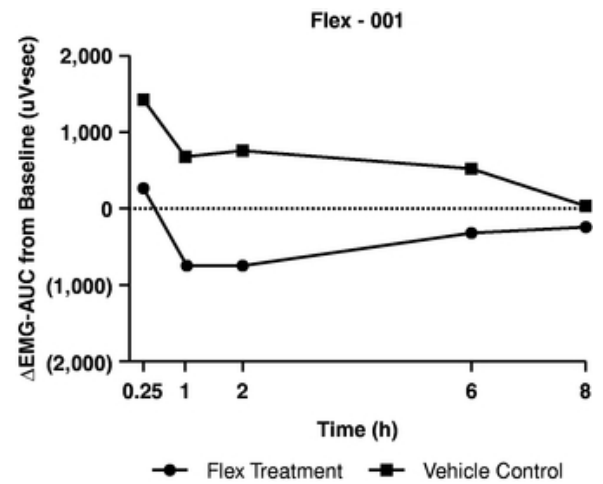
On the first testing day of Flex-001 and Flex-002, the subjects were familiarized with the testing protocol, including the cramp stimulation technique. In subsequent testing days in Flex-001 and Flex-002, subjects received vehicle control or our proprietary treatment and the effect of each test article in preventing cramps was assessed over an eight-hour period during each day. In Flex-003, all subjects received our proprietary treatment on the first day of testing and received vehicle control on subsequent days of testing, and on each day the effect of each test article in preventing cramps was assessed. By having subjects "cross-over" from our proprietary treatment to the vehicle control between testing days, or vice versa, each subject serves as his or her own control.

### Results of Clinical Studies

In each study, our proprietary treatment demonstrated statistical significance in reducing muscle cramps. No participants in the studies reported any serious adverse events and our proprietary treatment was well tolerated.

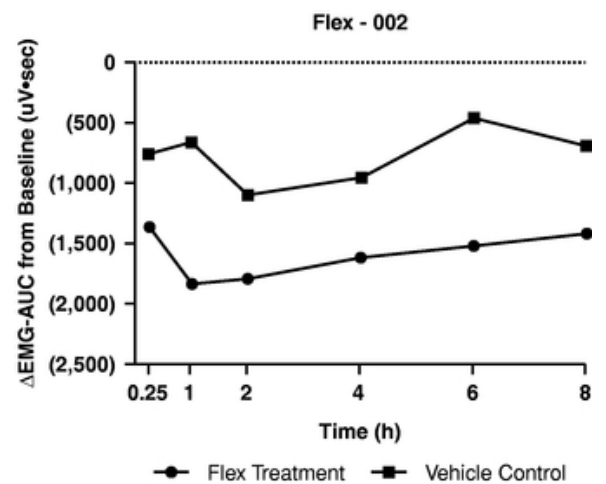
In Flex-001, we tested six subjects at the 15 minute and one, two, six and eight hour timepoints and found our proprietary treatment demonstrated a statistically significant overall treatment effect in reducing muscle cramps in comparison to vehicle control (analysis of variance, or ANOVA,  $p < 0.0001$ ). Figure 3 depicts the time-course of cramp reduction observed during Flex-001 and displays a decrease of the baseline-adjusted AUC of our proprietary treatment compared to vehicle control.

Figure 3



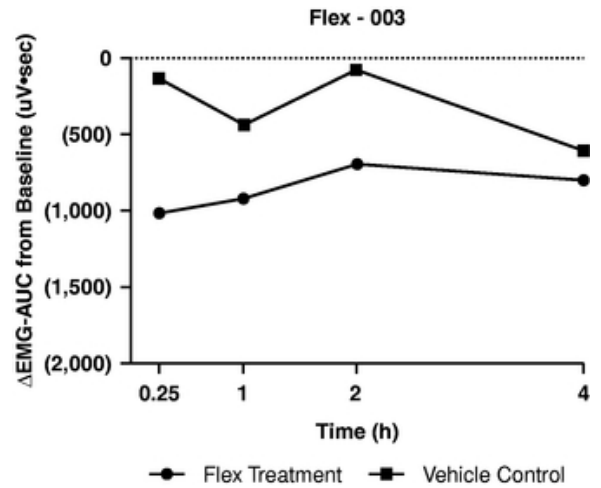
In Flex-002, we tested 16 subjects at the 15 minute and one, two, four, six and eight hour timepoints and found our proprietary treatment demonstrated a statistically significant overall treatment effect in reducing muscle cramps in comparison to vehicle control (ANOVA,  $p < 0.0001$ ). Figure 4 depicts the time-course of cramp reduction observed during Flex-002 and displays a decrease of the baseline-adjusted AUC of our proprietary treatment compared to vehicle control.

Figure 4



In Flex-003, we tested 15 subjects at the 15 minute and one, two and four hour timepoints and found our proprietary treatment demonstrated a statistically significant overall treatment effect in reducing muscle cramps in comparison to vehicle control (ANOVA,  $p=0.0286$ ). Figure 5 depicts the time-course of cramp reduction observed during Flex-003 and displays a decrease of the baseline-adjusted AUC of our proprietary treatment compared to vehicle control.

Figure 5



In each of our three studies, our proprietary treatment demonstrated a statistically significant overall treatment effect in reducing muscle cramps in comparison to vehicle control. Further, when the data from Flex-001, Flex-002 and Flex-003 are aggregated, our proprietary treatment showed a statistically significant overall treatment effect in the 37 normal healthy volunteers (ANOVA,  $p<0.0001$ ). Figure 6 below depicts the reduction in subjects' muscle cramps at various timepoints following administration of our proprietary treatment or vehicle control in all three studies combined and Figure 7 below depicts the aggregate reduction in subjects' muscle cramps across all timepoints when data from all three studies are combined. The aggregate data reflected in Figures 6 and 7 do not include data at the four hour timepoint for Flex-001 and at the six and eight hour timepoints for Flex-003 because, under the study protocols, data was not collected from subjects at these timepoints.

Figure 6

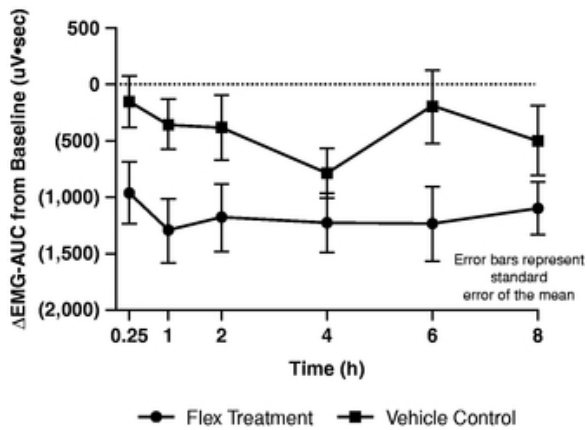
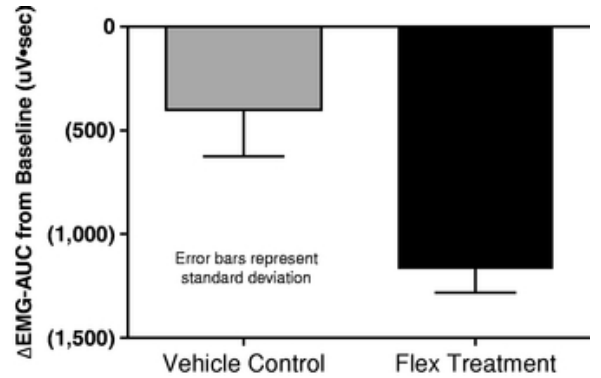


Figure 7



**Product Development**

Our proprietary treatment forms the basis of both our drug product and consumer product development efforts. We plan to study our proprietary treatment's safety and efficacy to develop prescription drugs that treat nocturnal leg cramps, spasms associated with severe neuromuscular conditions and other conditions where patients experience abnormal muscle contractions. However, we believe we may conduct clinical studies of our proprietary treatment for the treatment of nocturnal leg cramps in accordance with the regulatory framework applicable to dietary supplements rather than drugs because the FDA has indicated that the treatment of nocturnal leg cramps is an appropriate drug or dietary supplement claim. To that end, we do not believe our proof-of-concept studies in this proposed indication will require an IND with the FDA.

Additionally, we are modifying our proprietary treatment's characteristics to specifically formulate our consumer product for the athletic market to prevent EAMCs, which we believe will be marketed as a dietary supplement. The following table summarizes the development path for our proprietary treatment.

<b>Drug Product Candidates</b>		
<u>Target Indications</u>	<u>Current Development Status</u>	<u>Future Development Plans</u>
Nocturnal leg cramps	<ul style="list-style-type: none"> <li>• Initiating at least one human proof-of-concept, or POC, study of our proprietary treatment in the second quarter of 2015</li> <li>• Evaluating initiation of one or more POC studies of our proprietary treatment for one or more indications</li> </ul>	<ul style="list-style-type: none"> <li>• Phase 2 registration-directed clinical trial of drug product candidates if results from one or more POC studies are favorable</li> <li>• Phase 2 clinical trial of drug product candidates if results from POC studies are favorable</li> </ul>
MS spasticity, cervical dystonia and/or SCI spasticity		

<b>Consumer Product</b>		
<u>Target Market</u>	<u>Current Development Status</u>	<u>Future Development Plans</u>
Exercise-associated muscle cramps or EAMCs	<ul style="list-style-type: none"> <li>• Formulation and launch efforts underway</li> </ul>	<ul style="list-style-type: none"> <li>• Anticipated launch of our consumer brand and cornerstone product in the first quarter of 2016</li> </ul>

We are currently developing a drug product candidate to treat nocturnal leg cramps, our lead indication, using the TRP activators from our proprietary treatment. In the second quarter of 2015, we plan to initiate at least one human proof-of-concept study to evaluate the efficacy and tolerability of our proprietary treatment in individuals suffering from nocturnal leg cramps. In this randomized, blinded, placebo-controlled, cross-over design study, we will compare our proprietary treatment to a vehicle control in individuals suffering from nocturnal leg cramps at least four nights per week. The protocol for our proposed study in the United States has been accepted by an IRB, and we will submit a protocol to a local ethics committee in each of the United Kingdom and Australia. The first person is expected to be enrolled in the second quarter of 2015, with each individual tested over a six-week period. The first two weeks of the study will be a run-in period where the subjects receive a vehicle control to help eliminate potential placebo effects. To continue in the study, subjects will need to experience nocturnal leg cramps during at least six nights for this two-week period. Following this run-in period, subjects will be randomly assigned to a two-week treatment period and a two-week placebo period. We believe our nocturnal leg cramps study will take approximately 12 to 15 months to complete.



We may also initiate human proof-of-concept studies outside the United States to evaluate the efficacy and tolerability of our proprietary treatment compared to vehicle control in patients suffering from multiple sclerosis spasticity, cervical dystonia and SCI spasticity. Preparation of the regulatory submissions is ongoing and, if initiated, a study is expected to take between 12 and 20 months to complete depending on recruitment and treatment timelines. When deciding which indications to pursue, we will consider multiple factors, including the regulatory pathway for initiating trials, ease of patient recruitment and likely efficacy of our proprietary treatment in these indications.

We have multiple avenues for developing drug products using our novel insight of muscle cramp inhibition and the TRP activators in our proprietary treatment. We have not yet developed a drug product that includes a single purified TRP activator that has shown a statistically significant effect in reducing muscle cramps. While our proof-of-concept studies are ongoing, we will study TRP activators at different dosage levels, across alternative delivery systems and using different single agent and combination formulations in order to identify the most efficacious product candidate to bring to drug clinical trials. By altering the drug product attributes, we believe we can optimize the clinical effect and safety of our product candidates for individuals suffering from nocturnal leg cramps and spasms associated with severe neuromuscular disorders.

### ***Development Pathway***

Because the TRP activators in our proprietary treatment are generally recognized as safe, or GRAS, and the FDA has indicated that a dietary supplement may appropriately be marketed for the treatment of nocturnal leg cramps, we believe we may be able to expedite the timeline to bring a treatment to market by conducting clinical studies of the product for this proposed indication without first filing an IND. We have already completed testing for our proprietary treatment in three clinical studies of healthy normal volunteers and expect to begin at least one human proof-of-concept study of our proprietary treatment for the treatment of nocturnal leg cramps in the second quarter of 2015.

The FDA regulates products on the basis of their 'intended use' rather than their mechanism of action. As a result, certain uses of our proprietary treatment will be regulated as dietary supplements and certain uses will be regulated as drug products. Treatment or prevention of nocturnal leg muscle cramps is a particular indication that the FDA stated qualifies as a dietary supplement structure/function claim or intended use, although it can also be targeted by drug products. Unlike drug products, a dietary supplement of GRAS ingredients for the treatment of nocturnal leg cramps may be studied in humans in the United States without submitting an IND application with the FDA. In Flex-001, Flex-002 and Flex-003, we tested our proprietary treatment as a dietary supplement to study its efficacy in treating or preventing muscle cramps. Similarly, we will study our proprietary treatment as a dietary supplement in our proof-of-concept studies for nocturnal leg cramps.

If the results of one or more of our proof-of-concept studies in nocturnal leg cramps are favorable, we intend to pursue the development of a drug product candidate for the treatment of nocturnal leg cramps. Our drug product candidates will be formulated differently than our proprietary treatment but will also contain TRP activators. We will submit an IND application with the FDA for a drug product candidate in advance of commencing a clinical trial of a drug product candidate in the United States. We would also discuss with regulatory authorities our intent to initiate a Phase 2 registration-directed clinical trial for drug product candidates intended to treat nocturnal leg cramps. We refer to this trial as a registration-directed because they would be designed to serve as the basis for an application seeking regulatory approval of a prescription drug product candidate.

Any proof-of-concept clinical studies in patients suffering from MS spasticity, cervical dystonia and SCI spasticity will be conducted outside of the United States. For our drug product candidates treating these conditions, we will pursue Phase 2 clinical trials in the United States after filing an IND if the results from our proof-of-concept studies are favorable.



### **Consumer Brand and Products**

As we continue the development of our drug product candidates, we are also developing a consumer product to prevent EAMCs and expect the launch of our consumer brand with our cornerstone product in the first quarter of 2016. We believe our consumer product will be regulated as a dietary supplement because we believe that EAMCs are not a disease claim that would subject the product to regulation as a drug. We do not believe there is any product that has been shown to be clinically effective in preventing EAMCs. Our cornerstone product will include ingredients from our proprietary treatment, specifically formulated to address the consumer market, and will be subject to regulation by the FDA as a dietary supplement. As we optimize taste and other product attributes, we will continue testing our consumer product using our electrically induced cramping technique and in studies with athletes engaged in high-intensity activities.

Our consumer brand and products will initially target athletes engaging in high-intensity activities who experience EAMCs. We believe these athletes will be interested in products that are clinically proven to be effective and we expect our cornerstone product will be a beverage that is marketed to athletes engaging in high-intensity activities. Over time, we believe our target market may expand beyond core athletes to include casual participants in sports. As our brand and target market evolves, we anticipate evaluating product line extension opportunities. The breadth of our consumer products will depend on a variety of factors, including brand positioning, target audience and product formulation alternatives. Ultimately, our goal is to develop several different products, potentially across different product lines, targeted towards both core and casual athletes.

### **Intellectual Property**

Our success depends in part on our ability to obtain and maintain intellectual property protection for our drug candidates, consumer products, technology and know-how, and to operate without infringing upon the proprietary rights of others. Our goal is to obtain, maintain and enforce patent protection for our products, formulations, processes, methods and other proprietary technologies, preserve our trade secrets, and operate without infringing on the proprietary rights of other parties, both in the United States and in other countries.

### **Patents and Patent Applications**

Our policy is to actively seek to obtain, where appropriate, the broadest intellectual property protection possible for our current and future drug product candidates and consumer products, proprietary information and proprietary technology through a combination of contractual arrangements and patents, both in the United States and abroad. However, even patent protection may not always afford us with complete protection against competitors who seek to circumvent our patents. Our commercial success will depend in part upon whether we are able to obtain and maintain adequate protection against unauthorized third-party use of our products and technologies. In our efforts to do so, however, there are a number of risks we may face, any of which may hinder our ability to successfully market our potential products. For more information regarding risks related to patents and other intellectual property, see "Risk Factors — Risks Related to Intellectual Property."

As of October 15, 2014, we own one pending U.S. utility patent application and one European patent application directed to compositions for preventing, treating or ameliorating muscle cramping. A patent

based on these applications, if issued, would have a statutory expiration in the United States in July 2031 and in Europe in July 2031. We also own three U.S. provisional patent applications. Our provisional patent applications are directed at various aspects of our work including influencing neuromuscular activity by stimulating a TRP channel or acid sensing ion channel, or ASIC, in the nerve ending of a sensory neuron. The provisional patent applications include methods for preventing and treating various muscle-related conditions and disorders. The provisional patent applications also include various uses of TRP or ASIC activators, formulations, compositions of chemical matter, and enabling technology such as the electrical stimulation technique for inducing muscle cramps. While we seek broad coverage for our patents, there is always a risk that an alteration to the formulation of our drug product candidates and consumer products may provide sufficient basis for a competitor to avoid infringement claims by us.

### ***Trade Secrets, Trademarks and Proprietary Information***

Our drug product candidates and consumer products have gone through numerous iterations to optimize the effect of our products, thereby creating trade secrets and proprietary know-how. We seek to protect our proprietary information, including our trade secrets and proprietary know-how, by requiring our employees, upon the commencement of their employment with us, to execute Proprietary Information, Inventions, Non-Solicitation, and Non-Competition Agreements upon the commencement of their employment. Consultants and other advisors are required to sign consulting agreements. These agreements generally provide that all confidential information developed or made known during the course of the relationship with us be kept confidential and not be disclosed to third-parties except in specific circumstances. In the case of our employees, the agreements also typically provide that all inventions resulting from work performed for us, utilizing our property or relating to our business and conceived or completed during employment shall be our exclusive property to the extent permitted by law. Further, we require confidentiality agreements from entities that receive our confidential data or materials.

Brand development of our consumer products is currently underway. We intend to apply for trademark protection with the U.S. Patent and Trademark Office and applicable foreign bodies for any brand we develop. Issuance of a federally registered trademark creates a rebuttable presumption of ownership of the mark, but may be subject to challenge by others claiming first use in the mark in some or all of the areas in which it is used. Federally registered trademarks have a perpetual life, as long as they are maintained and renewed on a timely basis and used properly as trademarks, subject to the rights of third-parties to seek cancellation of the trademarks if they claim priority or confusion of usage. We believe that trademarks will be an important element of our ability to successfully market our consumer products.

### **Manufacturing**

We do not currently have our own manufacturing facilities. We intend to continue to use our financial resources to focus on developing our product candidates, and we do not intend to establish our own manufacturing facilities. We intend to meet our pre-clinical and clinical trial manufacturing requirements by establishing relationships with third-party manufacturers and other service providers to perform these services for us.

We will continue using third-party manufacturers and other service providers to meet the manufacturing needs of our consumer products while under development. We do not have any long-term agreements or commitments for these services. In anticipation of the launch of our consumer brand and cornerstone product in the first quarter of 2016, we expect to establish relationships with third-party manufacturers and other service providers for the commercial production of our cornerstone product.

We do not currently have any long-term agreements or commitments from any of our suppliers. In connection with the launch of our consumer brand, our cornerstone product and future products and the initiation of our clinical trials, we expect to enter into long-term supply contracts to ensure the availability of the material ingredients in our consumer products and drug product candidates.

## **Sales and Marketing**

We currently have no marketing, sales or distribution capabilities. In order to commercialize our consumer product and any drug product candidate that is approved for commercial sale, we must either develop a sales and marketing infrastructure or collaborate with third-parties that have sales and marketing experience.

### ***Drug Products***

We may elect to establish our own sales force to market and sell a drug product candidate for which we obtain regulatory approval if we expect that the geographic market for the product is limited or that the prescriptions for the product will be written principally by a relatively small number of physicians. If we decide to market and sell any products ourselves, we do not expect to establish direct sales capabilities until shortly before the products are approved for commercial sale.

We plan to seek third-party support from established pharmaceutical and biotechnology companies for those products that would benefit from the promotional support of a large sales and marketing force. In these cases, we might seek to promote our products in collaboration with marketing partners or rely on relationships with one or more companies with large established sales forces and distribution systems.

### ***Consumer Brand and Products***

We expect to launch our consumer brand with our cornerstone product in the first quarter of 2016. Our initial sales and marketing efforts will likely be focused on building brand awareness of our cornerstone product among key opinion leaders and core endurance athletes. To drive product trial, we expect to use a variety of sales and marketing strategies, including public relations campaigns, product sampling and promotional activities at leading gyms, fitness centers and events such as marathons, triathlons, cycling events and obstacle course races. We anticipate leveraging early adopters to drive product and messaging advocacy and using targeted digital and social media campaigns to initiate and expand product sales. We will also consider e-commerce strategies to sell online through direct-to-consumer websites and partner sites and we may develop strategic partnerships with fitness and lifestyle brand to expand product awareness.

We expect to rely on outsourced sales organizations to distribute our product initially to key fitness center locations and through sporting good channels, expanding over time into mainstream channels, such as drugstores, vitamin shops and grocery stores. We may also have a limited internal sales team targeting specific distribution channels.

## **Competition**

The biotechnology and pharmaceutical industries are characterized by rapidly advancing technologies, intense competition and a strong emphasis on proprietary products. While we believe that our technologies, knowledge, experience and scientific resources provide us with competitive advantages, we face potential competition from many different sources, including major pharmaceutical, specialty pharmaceutical and biotechnology companies, academic institutions and governmental agencies and public and private research institutions. Any drug product candidates that we successfully develop and commercialize will compete with existing therapies and new therapies that may become available in the future. The key competitive factors affecting the success of our drug product candidates, if approved, are likely to be their efficacy, durability, safety, price and the availability of coverage and reimbursement from government and other third-party payors.

For nocturnal leg cramps, systemic treatments, such as dietary supplements, vasodilators and calcium channel blockers, have shown some benefit, but we do not believe any medication has shown evidence of clinical efficacy. Quinine is taken by some individuals outside the United States but the FDA banned the over-the-counter use of quinine for the treatment of nocturnal leg cramps in 1994 and it is presently available only for the prescription treatment of malaria and its labeling contains a boxed warning against use in treating nocturnal leg cramps.

For patients suffering from MS spasticity, the current treatments include muscle relaxants, sedatives and Botox injections. Other biotechnology companies are currently developing drug products to treat MS spasticity, including Xenoport, Inc., which is developing a r-Baclofen Prodrug, and GW Pharma, which is developing Sativex.

Botox injection is the most commonly used treatment for cervical dystonia. SCI spasticity is treated with physical therapy, including surface electrical stimulation, surgery or drug therapy, including muscle relaxants, sedatives or Botox injections.

We believe our consumer product for the prevention of EAMCs will compete against traditional beverage companies, sports beverage companies and companies developing dietary supplements. We believe the principal elements of competition in the consumer product industry will be price, brand recognition, distribution channel offerings and the effectiveness of the product. We do not expect any third-party payors to cover and reimburse for our consumer products.

### **Royalty Agreement**

In connection with the transfer of certain intellectual property to us, by the scientific Founders and by Christoph Westphal, or collectively the Founders, on March 20, 2014, we entered into a royalty agreement with the Founders. Pursuant to the royalty agreement, we are obligated to pay the Founders a royalty of 2%, in the aggregate, of gross sales of any product sold during such calendar quarter. This royalty applies to any product sold by us or by any of our licensees for use in the treatment of any neuromuscular disorders, and that uses, incorporates or embodies, or made using any of our intellectual property, including any know-how. The royalty agreement grants the Founders certain audit rights and requires any license or sublicense granted by us be consistent with the terms and conditions of the royalty agreement. Each Founder may assign his rights and obligations under the royalty agreement to a third party upon prior written notice to us and we may not assign our rights and obligations thereunder except in the event of a change in control relating to our company. The term of the royalty agreement is perpetual.

### **Government Regulation**

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, quality control, approval, labeling, packaging, storage, record-keeping, promotion, advertising, distribution, post-approval monitoring and reporting, marketing and export and import of products such as those we are developing. Any drug candidate that we develop must be approved by the FDA before they may be legally marketed in the United States and by the corresponding foreign regulatory agencies before they may be legally marketed in foreign countries. Dietary supplements, while generally not subject to premarket review, still must comply with numerous manufacturing, labeling and other regulations.

### ***U.S. Drug Development Process***

In the United States, the FDA regulates drugs under the Federal Food, Drug, and Cosmetic Act, or FDCA, and its implementing regulations. Drugs are also subject to other federal, state and local statutes and regulations. The process of obtaining regulatory approvals and the subsequent compliance with appropriate federal, state, local and foreign statutes and regulations requires the expenditure of substantial time and financial resources. Failure to comply with the applicable requirements at any time during the product development process, approval process or after approval, may subject an applicant to a variety of administrative or judicial sanctions, such as the FDA's refusal to approve pending applications, withdrawal of an approval, imposition of a clinical hold, issuance of warning letters, product recalls, product seizures, total or partial suspension of production or distribution injunctions, fines, refusals of government contracts, restitution, disgorgement of profits or civil or criminal penalties. Any agency or judicial enforcement action

could have a material adverse effect on us. The process required by the FDA before a drug may be marketed in the United States generally involves the following:

- completion of pre-clinical laboratory tests, animal studies and formulation studies according to Good Laboratory Practices, or GLP, or other applicable regulations;
- submission to the FDA of an IND application, which must become effective before human clinical trials 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 trials according to the FDA's laws and regulations pertaining to the conduct of human clinical studies, collectively referred to as Good Clinical Practices, or GCP, and according to the ICH GCP guidelines, to establish the safety and efficacy of the proposed drug for its intended use;
- submission to the FDA of an NDA for a proposed new drug;
- satisfactory completion of an FDA inspection of the manufacturing facility or facilities where the drug is produced to assess compliance with the FDA's cGMP requirements, to assure that the facilities, methods and controls are adequate to preserve the drug's identity, strength, quality and purity;
- potential FDA audit of the non-clinical and clinical trial sites that generated the data in support of the NDA; and
- FDA review and approval of the NDA prior to any commercial marketing, sale or shipment of the drug.

The lengthy process of seeking required approvals and the continuing need for compliance with applicable statutes and regulations require the expenditure of substantial resources and approvals are inherently uncertain.

Before testing any compounds with potential therapeutic value in humans, the drug candidate enters the non-clinical testing stage, also referred to as pre-clinical testing. Pre-clinical tests include laboratory evaluations of product chemistry, toxicity and formulation, as well as animal studies to assess the potential safety and activity of the drug candidate. The conduct of the pre-clinical tests must comply with federal regulations and requirements including GLP. The IND sponsor must submit the results of the pre-clinical tests, together with manufacturing information, analytical data, any available clinical data or literature and a proposed clinical protocol, among other things, to the FDA as part of the IND. The IND automatically becomes effective 30 days after receipt by the FDA, unless before that time the FDA raises concerns or questions related to one or more proposed clinical trials and places the trial 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 trial can begin. The FDA may also impose clinical holds on a drug candidate at any time before or during clinical trials due to safety concerns or non-compliance. Accordingly, we cannot be sure that submission of an IND will result in the FDA allowing clinical trials to begin, or that, once begun, issues will not arise that suspend or terminate such trial.

Clinical trials involve the administration of the drug candidate to healthy subjects or patients with the target disease under the supervision of qualified investigators, generally physicians not employed by or under the trial sponsor's control. Clinical trials are conducted under written study protocols detailing, among other things, the objectives of the clinical trial, dosing procedures, subject selection and exclusion criteria, and the parameters to be used to monitor subject safety. Each protocol must be submitted to the FDA as part of the IND. Clinical trials must be conducted in accordance with the FDA's regulations which reflect the ICH GCP requirements. Further, each clinical trial must be reviewed and approved by an IRB at or servicing each institution at which the clinical trial will be conducted. An IRB is charged with protecting the welfare and rights of trial participants and considers such items as whether the risks to individuals participating in the clinical trials are minimized and are reasonable in relation to anticipated benefits. The IRB also

approves the informed consent form that must be provided to each clinical trial subject or his or her legal representative and must monitor the clinical trial until it is completed.

During the development of a new drug, sponsors are given opportunities to meet with the FDA at certain points. These points may be prior to submission of an IND, at the end of Phase 2, and before an NDA is submitted. Meetings at other times may be requested. These meetings can provide an opportunity for the sponsor to share information about the data gathered to date, for the FDA to provide advice, and for the sponsor and FDA to reach agreement on the next phase of development. Sponsors typically use the end of Phase 2 meeting to discuss their Phase 2 clinical results and present their plans for the pivotal Phase 3 clinical trials that they believe will support approval of the new drug.

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

- Phase 1. The drug is initially introduced into healthy human subjects and tested for safety, dosage tolerance, absorption, metabolism, distribution and excretion. In the case of some products for severe or life-threatening diseases, especially when the product may be too inherently toxic to ethically administer to healthy volunteers, the initial human testing is often conducted only in patients having the specific disease.
- Phase 2. The drug is evaluated in a limited patient population to identify possible adverse events and safety risks, to preliminarily evaluate the efficacy of the product for specific targeted diseases and to determine dosage tolerance, optimal dosage and dosing schedule for patients having the specific disease.
- Phase 3. The drug is administered to an expanded patient population in adequate and well-controlled clinical trials to generate sufficient data to statistically confirm the efficacy and safety of the product for approval, to establish the overall risk-benefit profile of the product, and to provide adequate information for the labeling of the product. Generally, at least two adequate and well-controlled Phase 3 clinical trials are required by the FDA for approval of an NDA. In some cases, the FDA has approved a drug based on the results of a single adequate and well-controlled Phase 3 study of excellent design and which provided highly reliable and statistically strong evidence of important clinical benefit, such as an effect on survival, and a confirmatory study would have been difficult to conduct on ethical grounds.

Post-approval studies, also referred to as Phase 4 clinical trials, may be conducted after initial marketing approval. These studies are used to gain additional experience from the treatment of patients in the intended therapeutic indication and may be required by the FDA as part of the approval process.

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

Concurrent with clinical trials, companies usually complete additional animal studies and must also develop additional information about the chemistry and physical characteristics of the drug as well as 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 drug candidate and, among other things, the manufacturer must develop methods for testing the identity, strength, quality and purity of the final drug product. Additionally, appropriate packaging must be selected and tested and

stability studies must be conducted to demonstrate that the drug candidate does not undergo unacceptable deterioration over its shelf life.

### ***FDA Review and Approval Processes***

Assuming successful completion of all required testing in accordance with all applicable regulatory requirements, detailed investigational drug product information is submitted to the FDA in the form of an NDA requesting approval to market the product for one or more indications. The application includes all relevant data available from pertinent pre-clinical and clinical trials, including negative or ambiguous results as well as positive findings, together with detailed information relating to the product's chemistry, manufacturing, controls and proposed labeling, among other things. The FDA reviews all NDAs submitted before it accepts them for filing and may request additional information rather than accepting an NDA for filing. Once the submission is accepted for filing, the FDA begins an in-depth review of the NDA. Under the goals and policies agreed to by the FDA under the Prescription Drug User Fee Act, or PDUFA, the FDA has 12 months after submission of an NDA in which to complete its initial review of a standard new molecular entity NDA and respond to the applicant, and eight months for a priority review NDA. The FDA does not always meet its PDUFA goal dates for review of standard and priority review NDAs. The review process and the PDUFA goal date may be extended by additional three month review periods whenever the FDA requests or the NDA sponsor otherwise provides additional information or clarification regarding information already provided in the submission at any time during the review cycle.

The FDA reviews the NDA to determine, among other things, whether the proposed product is safe and effective for its intended use, and whether the product is being manufactured in accordance with cGMP to assure and preserve the product's identity, strength, quality and purity. The FDA may refer applications for novel drug products or drug products which present difficult questions of safety or efficacy to an advisory committee, typically a panel that includes clinicians and other experts, for review, evaluation and a recommendation as to whether the application should be approved and under what conditions. The FDA is not bound by the recommendations of an advisory committee, but it considers such recommendations carefully when making decisions. During the drug approval process, the FDA also will determine whether a risk evaluation and mitigation strategy, or REMS, is necessary to assure the safe use of the drug. If the FDA concludes a REMS is needed, the sponsor of the NDA must submit a proposed REMS; the FDA will not approve the NDA without a REMS, if required.

Before approving an NDA, the FDA will inspect the facilities at which the product is to be manufactured. The FDA will not approve the product unless it determines that the manufacturing processes and facilities are in compliance with cGMP requirements and adequate to assure consistent production of the product within required specifications. Additionally, before approving an NDA, the FDA will typically inspect one or more clinical sites to assure compliance with FDA regulations regarding conduct of clinical trials for the product's trials. If the FDA determines that the application, manufacturing process or manufacturing facilities are not acceptable, it will outline the deficiencies in the submission and often will request additional testing or information.

The NDA review and 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 is submitted, the FDA may ultimately decide that the NDA does not satisfy the criteria for approval. Data obtained from clinical trials are not always conclusive and the FDA may interpret data differently than we interpret the same data, which could delay, limit or prevent regulatory approval. The FDA will issue a "complete response" letter if the agency decides not to approve the NDA. The complete response letter usually describes all of the specific deficiencies in the NDA identified by the FDA. The deficiencies identified may be minor, for example, requiring labeling changes, or major, for example, requiring additional clinical trials. 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 NDA, addressing all of the deficiencies identified in the letter, or withdraw the application.



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, referred to as Phase 4 testing, which involves clinical trials designed to further assess a product's safety and effectiveness and may require testing and surveillance programs to monitor the safety of approved products that have been commercialized.

### ***Post-Approval Requirements***

Any drug products for which we receive FDA approvals are subject to continuing regulation by the FDA, including, among other things, record-keeping requirements, reporting of adverse experiences with the product, providing the FDA with updated safety and efficacy information, product sampling and distribution requirements, complying with certain electronic records and signature requirements and complying with FDA promotion and advertising requirements. These promotion and advertising requirements include, among other things, standards for direct-to-consumer advertising, prohibitions against promoting drugs for uses or in patient populations that are not described in the drug's approved labeling (known as "off-label use"), rules for conducting industry-sponsored scientific and educational activities, and promotional activities involving the internet. Failure to comply with FDA requirements can have negative consequences, including adverse publicity, enforcement letters from the FDA, mandated corrective advertising or communications with doctors, and civil or criminal penalties. Although physicians may prescribe legally available drugs for off-label uses, manufacturers may not market or promote such off-label uses.

We rely, and expect to continue to rely, on third-parties for the production of clinical and commercial quantities of our products. Manufacturers of our products are required to comply with applicable FDA manufacturing requirements contained in the FDA's cGMP regulations. cGMP regulations require, among other things, quality control and quality assurance as well as the corresponding maintenance of records and documentation. Drug manufacturers and other entities involved in the manufacture and distribution of approved drugs are also 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. Accordingly, manufacturers must continue to expend time, money, and effort in the area of production and quality control to maintain cGMP compliance. Discovery of problems with a product after approval may result in restrictions on a product, manufacturer, or holder of an approved NDA. These restrictions may include suspension of a product until the FDA is assured that quality standards can be met, continuing oversight of manufacturing by the FDA under a consent decree of permanent injunction, which frequently includes the imposition of costs and continuing inspections over a period of many years, as well as possible withdrawal of the product from the market. In addition, changes to the manufacturing process generally require prior FDA approval before being implemented. 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.

### ***U.S. Marketing Exclusivity***

Market exclusivity provisions under the FDCA can also delay the submission or the approval of certain applications of other companies seeking to reference another company's NDA. If the new drug is a new chemical entity subject to an NDA, the FDCA provides a five-year period of non-patent marketing exclusivity within the United States to the first applicant to obtain 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 abbreviated new drug application, or 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, such an application may be submitted after four years if it contains a certification of patent invalidity or non-infringement to one of the patents listed with the FDA by the innovator NDA holder. The FDCA also provides three years of

marketing exclusivity for an 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 new indications, dosages or strengths of an existing drug. This three-year exclusivity covers only the conditions associated with the new clinical investigations and does not prohibit the FDA from approving ANDAs 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 pre-clinical studies and adequate and well-controlled clinical trials necessary to demonstrate safety and effectiveness.

### ***Dietary Supplement Government Regulation***

Our consumer product under development will be regulated as a dietary supplement. In addition, treatment or prevention of nocturnal leg muscle cramps are a particular indication that the FDA stated, in a Federal Register notice in 2000 (65 Fed. Reg. 1031), qualifies as a dietary supplement structure/function claim or intended use, although it can also be targeted by drug products. Dietary supplement products are subject to extensive regulation in the U.S. and abroad with respect to their identity, purity, quality, strength, composition, processing, formulation, safety, manufacturing, packaging, labeling, advertising and distribution. The manufacture, packaging, labeling, holding, sale, and distribution of dietary supplements are also subject to extensive local, state, and foreign government regulation. For example, under the European Union Directive (Directive 2002/46/EC as amended), only dietary supplements listed in Annex II to that directive or which were sold in the European Union before the directive entered into force on July 12, 2001 may be sold in Europe subject to EU restrictions on dosage amounts, forms, label claims and advertising. The Bureau of Customs and Border Patrol, or CBP, a division of the Department of Homeland Security, also regulates shipments containing dietary ingredients, dietary supplements, cosmetics, drugs, biologics, and medical devices and engages in enforcement activity in concert with the FDA to block the import or export of articles deemed adulterated or otherwise unlawful for sale in the United States (imports) or in the non-U.S. country to which articles are addressed. CBP holds on articles or demands for recall can interfere with the timely delivery of products to market and can result in regulatory fines and penalties.

The FDCA has been amended several times affecting provisions that concern dietary ingredients and dietary supplements, including by the Dietary Supplement Health and Education Act of 1994, or DSHEA. DSHEA formally defined what may be sold as a dietary supplement, defined statements of nutritional support and the conditions under which they may lawfully be used, and included provisions that permit the FDA to regulate manufacturing practices and labeling claims peculiar to dietary supplements. "Dietary supplements" are defined as vitamins, minerals, herbs, other botanicals, amino acids and other dietary substances that are used to supplement the diet, as well as concentrates, constituents, extracts, metabolites, or combinations of such dietary ingredients. Generally, under DSHEA, dietary ingredients that were on the market before October 15, 1994 may be used in dietary supplements without notifying the FDA. However, a "new" dietary ingredient (i.e., a dietary ingredient that was not marketed as a dietary supplement in the U.S. before October 15, 1994) must be the subject of a new dietary ingredient notification submitted to the FDA unless the ingredient has been "present in the food supply as an article used for food" without having been "chemically altered." A new dietary ingredient notification must provide the FDA with evidence of a "history of use or other evidence of safety" which establishes that use of the dietary ingredient "will reasonably be expected to be safe." A new dietary ingredient notification must be submitted to the FDA at least 75 days before the new dietary ingredient can be marketed. There can be no assurance that the FDA will accept evidence purporting to establish the safety of any new dietary ingredients that we may want to market, and the FDA's refusal to accept such evidence could prevent the marketing of such dietary ingredients.

Increased FDA enforcement could lead the FDA to challenge dietary ingredients already on the market as "illegal" under the FDCA because of the failure to file a new dietary ingredient notification or because the

substance may be one found to be the subject of an IND for which clinical trials have commenced and been publicized. Although we expect our proprietary treatment to be marketed both as a dietary supplement and a drug product candidate that will eventually be subject to an IND, DSHEA does not restrict marketing of a product as a dietary supplement where the substance is under investigation pursuant to an IND and the product was first marketed as a dietary ingredient or food. The ingredients in our proprietary treatment have a long history of use in food.

The FDA generally prohibits labeling a dietary supplement with any "health claim" (i.e., any statement associating a nutrient with risk-reduction, but not treatment, of a disease or health-related condition), unless the claim is pre-approved by the FDA. The FDA prohibits entirely disease diagnosis, prevention and treatment claims when made for a dietary supplement. However, "statements of nutritional support," including so-called "structure/function claims," are permitted to be included in labeling for dietary supplements without FDA pre-approval. Such statements may describe how a particular dietary ingredient affects the structure, function or general well-being of the body, or the mechanism of action by which a dietary ingredient may affect the structure, function or well-being of the body, but such statements may not state that a dietary supplement will reduce the risk or incidence of a disease unless such claim has been reviewed and approved by the FDA. A company that uses a statement of nutritional support in labeling must possess evidence substantiating that the statement is truthful and not misleading. Such statements must be submitted to the FDA no later than thirty days after first marketing the product with the certification that they possess the necessary evidence and must be accompanied by an FDA mandated label disclaimer that "This statement has not been evaluated by the FDA. This product is not intended to diagnose, treat, cure or prevent any disease." There can be no assurance, however, that the FDA will not determine that a particular statement of nutritional support that we want to use is an unacceptable disease claim or an unauthorized nutrient-disease relationship claim otherwise permitted with FDA approval as a "health claim." Such a determination might prevent the use of such a claim.

In addition, DSHEA provides that certain "third-party literature," such as a reprint of a peer-reviewed scientific publication linking a particular dietary ingredient with health benefits, may "in connection with the sale of a dietary supplement to consumers" be exempt from labeling regulation. However, the FDA has adopted an "intent to use" doctrine whereby such literature even if exempt from labeling may nonetheless form the basis for an agency determination that the literature in context reveals a company intent to sell a dietary ingredient or dietary supplement as a drug, thereby rendering the supplement an unlawful, unapproved new drug. Because the "intent to use" doctrine is predicated on a subjective assessment of all facts and circumstances associated with the promotion and sale of a dietary supplement, we cannot know whether any particular piece of literature otherwise exempt from labeling will be deemed by the FDA unlawful for use in association with the sale of the dietary ingredient or dietary supplement.

As authorized by the FDCA, the FDA has adopted and implemented Good Manufacturing Practices, or GMPs, specifically for dietary supplements. These GMPs impose extensive process controls on the manufacture, holding, labeling, packaging, and distribution of dietary supplements and the components of dietary supplements. They require that every dietary supplement be made in accordance with a master manufacturing record with all dietary ingredients verified by identity testing before use, that each step in manufacture, holding, labeling, packaging, and distribution be defined with written standard operating procedures, monitored, and documented, and that any deviation in manufacture, holding, labeling, packaging, or distribution be contemporaneously documented, assessed by a quality control expert, and corrected through documented corrective action steps (whether through an intervention that restores the product to the specifications in the master manufacturing record or to document destruction of the non-conforming product). The GMPs are designed to ensure documentation, including testing results that confirm the identity, purity, quality, strength, and composition of finished dietary supplements. In addition, GMPs require a company to make and keep written records of every product complaint that is related to GMPs. The written record of the product complaint must include the following: the name and description of the dietary supplement; the batch, lot, or control number of the dietary supplement, if available; the date

the complaint was received and the name, address, or telephone number of the person making the complaint, if available; the nature of the complaint, including, if known, how the product was used; the reply to the complainant, if any; and findings of the company's quality control investigation and follow-up action taken when an investigation is performed. The regulations directly affect all who manufacture the dietary supplements we sell and our distribution of dietary supplements. The FDA may deem any dietary supplement adulterated, whether presenting a risk of illness or injury or not, based on a failure to comply with any one or more process controls in the GMP regulations. If deemed adulterated, a dietary supplement may not be lawfully sold and may have to be recalled from the market. In recent years, the FDA's main focus has evolved from basic violations, such as failure to set specifications, to more technical violations, such as finished product testing violations. It is possible that the FDA will find one or more of the process controls implemented by our contract manufacturers and, thus, requiring corrective action, requiring any one or more of the dietary supplements we sell to be unlawful for sale, or resulting in a judicial order that may impair our ability to market, and sell dietary supplements.

The FDA also requires serious adverse event reporting for all dietary supplements. An "adverse event" is defined by statute to include "any health-related event associated with the use of a dietary supplement that is adverse." While all adverse event complaints received must be recorded in accordance with the GMPs discussed above, only serious adverse events must be reported to FDA. A "serious adverse event" is an adverse event that: results in death, a life-threatening experience, inpatient hospitalization, a persistent or significant disability or incapacity, or a congenital anomaly or birth defect; or requires, based on reasonable medical judgment, a medical or surgical intervention to prevent an outcome described above. When a manufacturer, packer or distributor whose name appears on the product label of a dietary supplement receives any report of a serious adverse event associated with the use of the dietary supplement in the United States, the company must submit a "serious adverse event report" on MedWatch Form 3500A. The report must be filed within 15 business days of receipt of information regarding the adverse event. All adverse event reports, whether serious or not, must be recorded and kept in company records under the GMP rules. A company must maintain records of each report of any adverse event (both serious and non-serious) for a minimum of six years. These records should include any documents related to the report, including: the company's serious adverse event report to the FDA with attachments; any new medical information about the serious adverse event received; all reports to the FDA of new medical information related to the serious adverse event; and any communications between the company and any other person(s) who provided information related to the adverse event.

The regulation of dietary supplements may increase or become more restrictive in the future. There can be no assurance that, if more stringent statutes are enacted for dietary supplements, or if more stringent regulations are promulgated, we will be able to comply with such statutes or regulations without incurring substantial expense.

The FDA has broad authority to enforce the provisions of the FDCA concerning all of the products it regulates, including powers to issue a public "warning letter" to a company, to quarantine and prohibit the sale of products deemed adulterated or misbranded, to publicize information about illegal products, to request a voluntary recall of illegal products from the market, to request that the Department of Justice initiate a seizure action, an injunction action or a criminal prosecution in U.S. courts, and to seek disgorgement from a federal court of all proceeds received from the sale of products deemed misbranded or adulterated.

The Federal Trade Commission, or FTC, enforces the Federal Trade Commission Act, or FTCA, and related regulations, which govern the advertising associated with the promotion and sale of dietary supplements to prevent misleading or deceptive claims.

In recent years, the FTC has instituted numerous enforcement actions against dietary supplement companies for making false or misleading advertising claims and for failing to adequately substantiate claims made in advertising. These enforcement actions have often resulted in consent decrees and the payment of civil penalties and/or restitution by the companies involved. The FTC also regulates other aspects of consumer purchases including, but not limited to, promotional offers of savings compared policies, telemarketing, continuity plans, and "free" offers.

We are also subject to regulation under various state, local and international laws that include provisions governing, among other things, the formulation, manufacturing, packaging, labeling, advertising and distribution of dietary supplements. California has a law called the "Consumers Legal Remedies Act" (Cal. Civ. Code §§ 1750 *et seq*) that allows private parties to assert a class action claim for false or deceptive advertising. It is typically asserted in combination with claims for false advertising and unfair competition under the California Business and Professions Code. California law firms specializing in this type of consumer class action claims have recently been targeting dietary supplement makers and sellers of products sold in California, claiming injury based on the products' failure to deliver results as claimed in product labeling and promotion.

The U.S. Postal Inspection Service enforces federal laws governing fraudulent use of the mail. Regulation of certain aspects of the dietary supplement business at the federal level is also governed by the Consumer Product Safety Commission, or CPSC, (e.g., concerning the presence of adulterated substances, such as toxic levels of lead or iron, that render products unsafe for consumption and require a CPSC ordered recall), the Department of Agriculture (e.g., for products that are intended for ingestion as dietary supplements for animals) and the Environmental Protection Agency (e.g., in the methods of disposal used for certain dietary ingredients, such as colloidal silver).

Government regulations in foreign countries may prevent or delay the introduction, or require the reformulation, of certain of our products. Compliance with such foreign governmental regulations is generally the responsibility of our distributors in those countries. These distributors are independent contractors whom we do not control.

In addition, from time to time in the future, we may become subject to additional laws or regulations administered by the FDA, the FTC, or by other federal, state, local or foreign regulatory authorities, to the repeal of laws or regulations that we generally consider favorable, such as DSHEA, or to more stringent interpretations of current laws or regulations. We are not able to predict the nature of such future laws, regulations, repeals or interpretations, and we cannot predict what effect additional governmental regulation, if and when it occurs, would have on our business in the future. Such developments could, however, require reformulation of certain products to meet new standards, recalls or discontinuance of certain products not able to be reformulated, additional record-keeping requirements, increased documentation of the properties of certain products, additional or different labeling, additional scientific substantiation, additional personnel or other new requirements. Any such developments could have a material adverse effect on our business.

## **Europe**

The European Union, or EU, is responsible for the development of legislation governing foods, nutritional supplements, and medicines sold in Europe. Member States of the EU, or Member States, are authorized to develop local legislation governing these products, provided such legislation is not more restrictive than the legislation promulgated by the EU. Member States are responsible for enforcement of the applicable legislation. In 2002, the EU established a process for Member States to bring this regulating legislation in line with a published directive of the EU, which addressed the labeling and marketing of vitamins and minerals, what nutrients are permitted or not permitted and other packaging requirements. In 2004, the EU established standards for the manufacture and marketing of herbal medicines with the Traditional Herbal Medicinal Products Directive. This requires, among other things, manufacturers of herbal medicinal products to comply with Pharmaceutical Group Standards, and only requires proof of safety, not efficacy.

In 2006, the EU adopted its Commission Directive 2006/37/EC, amending its Directive 2002/46/EC. Under the amended directive, only nutrients listed in Annex II, or approved by subsequent order of the EU, may be lawfully sold in Member States. The EU also regulates labels, labeling, and advertising associated with the promotion and sale of dietary supplements in Europe. These regulations may make it unlawful for us to sell in Europe certain products lawfully labeled and sold in the United States, adversely affecting the finances of the business.

In the United Kingdom, the principal governing legislation is the Food Safety Act of 1990 (governing safety of food products) and the Medicines Act of 1968 (governing licensing and sale of medicine). Further guidance is provided by numerous Statutory Instruments addressing the formulation, purity, packaging, advertising and labeling of such products. Medicinal products are regulated and enforced by the Medicines and Healthcare Products Regulatory Agency (MHRA), an agency of the Department of Health. The MHRA determines if an herbal remedy is medicinal by virtue of its "presentation" or "function." Food products are regulated by the Food Standard Agency (FSA), which reports to the Department of Health and to the Department of Environment, Food and Rural Affairs. Vitamin and mineral supplements and soup products with herbal ingredients are generally considered food supplements and are subject to the purview of the FSA. Additional legislative standards have been adopted in the other EU countries, typically similar in scope to the UK. The regulatory scheme in Canada is similar but not identical to that of the U.S. concerning medicines and healthcare products or material health products and is regulated by Health Canada.

### ***Pharmaceutical Coverage, Pricing and Reimbursement for Drug Products***

Significant uncertainty exists as to the coverage and reimbursement status of any drug candidates for which we obtain regulatory approval. In the United States and markets in other countries, sales of any drug products for which we receive regulatory approval for commercial sale will depend in part on the availability of coverage and adequate reimbursement from third-party payors. Third-party payors include government payor programs at the federal and state levels, including Medicare and Medicaid, managed care providers, private health insurers and other organizations. The process for determining whether a payor will provide coverage for a drug product may be separate from the process for setting the price or reimbursement rate that the payor will pay for the drug product. Third-party payors may limit coverage to specific drug products on an approved list, or formulary, which might not include all of the FDA-approved drug products for a particular indication. In addition, 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.

The cost of pharmaceuticals continues to generate substantial governmental and third-party payor interest. We expect that the pharmaceutical industry will continue to experience pricing pressures due to the trend toward managed healthcare, the increasing influence of managed care organizations and additional legislative and regulatory initiatives. Third-party payors are increasingly challenging the prices charged for medical products and services and examining the medical necessity and cost-effectiveness of medical products and services, in addition to their safety and efficacy. We may need to conduct expensive pharmacoeconomic studies in order to demonstrate the medical necessity and cost-effectiveness of our drug products, in addition to the costs required to obtain the FDA approvals. If these third-party payors do not consider our drug products to be cost-effective compared to other available therapies, they may not cover our products after approval as a benefit under their plans or, if they do, the level of payment may not be sufficient to allow us to sell our products at a profit. The U.S. government, state legislatures and foreign governments 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 requirements for substitution of generic products for branded prescription drugs. Adoption of such controls and measures, and tightening of restrictive policies in jurisdictions with existing controls and measures, could limit payments for pharmaceuticals such as the drug candidates that we are developing and could adversely affect our net revenue and results.

Different pricing and reimbursement schemes exist in other countries. For example, in the European Community, governments influence the price of pharmaceutical products through their pricing and reimbursement rules and control of national healthcare systems that fund a large part of the cost of those products to consumers. Some jurisdictions operate positive and negative list systems under which products may only be marketed once a reimbursement price has been agreed. To obtain reimbursement or pricing approval, some of these countries may require the completion of clinical trials that compare the cost-effectiveness of a particular drug candidate to currently available therapies. Other member states allow companies to fix their own prices for medicines, but monitor and control company profits. The downward pressure on healthcare costs in general, particularly prescription drugs, has become very intense. As a result, increasingly high barriers are being erected to the entry of new products. In addition, in some countries, cross-border imports from low-priced markets exert a commercial pressure on pricing within a country. There can be no assurance that any country that has price controls or reimbursement limitations for drug products will allow favorable reimbursement and pricing arrangements for any of our products.

### **Healthcare Reform**

In the United States and foreign jurisdictions, there have been a number of legislative and regulatory changes to the healthcare system that could affect our future results of operations. In particular, there have been and continue to be a number of initiatives at the United States federal and state levels that seek to reduce healthcare costs.

In March 2010, President Obama signed into law the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act, collectively, the ACA, a sweeping law intended to, among other things, broaden access to health insurance, reduce or constrain the growth of healthcare spending, enhance remedies against fraud and abuse, add new transparency requirements for healthcare and health insurance industries, impose new taxes and fees on the health industry and impose additional health policy reforms. Among other things, the ACA revises the definition of "average manufacturer price" for calculating and reporting Medicaid drug rebates on outpatient prescription drug prices, which could increase the amount of Medicaid drug rebates to states once the provision is effective. Further, the new law imposes a significant annual fee on companies that manufacture or import branded prescription drug products. Substantial new provisions affecting compliance have also been enacted, which may require us to modify our business practices with healthcare providers and entities, and a significant number of provisions are not yet, or have only recently become, effective. Although it is too early to determine the full effect of the ACA, the new law appears likely to continue the pressure on pharmaceutical pricing, especially under the Medicare and Medicaid programs, and may also increase our regulatory burdens and operating costs.

In addition, other legislative changes have been proposed and adopted since the ACA was enacted. For example, on August 2, 2011, the President signed into law the Budget Control Act of 2011, which, among other things, created the Joint Select Committee on Deficit Reduction to recommend to Congress proposals in spending reductions. The Joint Select Committee on Deficit Reduction did not achieve a targeted deficit reduction of at least \$1.2 trillion for the years 2013 through 2021, triggering the legislation's automatic reduction to several government programs. This includes aggregate reductions to Medicare payments to providers of up to 2% per fiscal year, which went into effect in April 2013, and will remain in effect through 2024 unless additional Congressional action is taken. On January 2, 2013, President Obama signed into law the American Taxpayer Relief Act of 2012, which, among other things, reduced Medicare payments to several providers 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 adverse effect on our customers and accordingly, our financial operations.

Moreover, the recently enacted Drug Supply Chain Security Act, imposes new obligations on manufacturers of pharmaceutical products, among others, related to product tracking and tracing, which will be phased in over several years beginning in 2015. Among the requirements of this new legislation, manufacturers will be

required to provide certain information regarding the drug product to individuals and entities to which product ownership is transferred, label drug product with a product identifier, and keep certain records regarding the drug product. The transfer of information to subsequent product owners by manufacturers will eventually be required to be done electronically. Manufacturers will also be required to verify that purchasers of the manufacturers' products are appropriately licensed. Further, under this new legislation, manufacturers will have drug product investigation, quarantine, disposition, and notification responsibilities related to counterfeit, diverted, stolen, and intentionally adulterated products, as well as products that are the subject of fraudulent transactions or which are otherwise unfit for distribution such that they would be reasonably likely to result in serious health consequences or death.

We expect that the ACA, as well as other healthcare reform measures that have been and may be adopted in the future, may result in more rigorous coverage criteria and in additional downward pressure on the price that we receive for any approved product, and could seriously harm our future revenue. Any reduction in reimbursement from Medicare or other government programs may result in a similar reduction in payments from private payors. The implementation of cost containment measures or other healthcare reforms may prevent us from being able to generate revenue, attain profitability, or commercialize our products.

#### ***Other U.S. Healthcare Laws and Compliance Requirements***

In the United States, our activities are potentially subject to regulation by various federal, state and local authorities in addition to the FDA, including the Centers for Medicare and Medicaid Services, other divisions of the United States Department of Health and Human Services (e.g., the Office of Inspector General), the United States Department of Justice and individual United States Attorney offices within the Department of Justice, and state and local governments. For example, various activities, including but not limited to sales, marketing and scientific/educational grant programs, must comply with the anti-fraud and abuse provisions of the Social Security Act, the federal Anti-Kickback Statute, the federal False Claims Act and similar state laws, each as amended. Failure to comply with such requirements could potentially result in substantial penalties to us. Even if we structure our programs with the intent of compliance with such laws, there can be no certainty that we would not need to defend against enforcement or litigation, in light of the fact that there is significant enforcement interest in pharmaceutical companies in the United States, and some of the applicable laws are quite broad in scope.

The federal Anti-Kickback Statute prohibits any person or entity, including a prescription drug manufacturer (or a party acting on its behalf), from knowingly and willfully soliciting, receiving, offering or providing remuneration, directly or indirectly, in cash or in kind, to induce or reward either the referral of an individual, or the furnishing, recommending, or arranging for a good or service, for which payment may be made under a federal healthcare program such as the Medicare and Medicaid programs. This statute has been interpreted to apply to arrangements between pharmaceutical manufacturers on one hand and prescribers, purchasers, and formulary managers on the other. The term "remuneration" has been broadly interpreted to include anything of value, including for example, gifts, discounts, the furnishing of supplies or equipment, credit arrangements, payments of cash, waivers of co-payments or deductibles, ownership interests and providing anything at less than its fair market value. Although there are a number of statutory exceptions and regulatory safe harbors protecting certain business arrangements from prosecution, the exceptions and safe harbors are drawn narrowly and practices that involve remuneration intended to induce prescribing, purchasing or recommending may be subject to scrutiny if they do not qualify for an exception or safe harbor. Our practices may not in all cases meet all of the criteria for protection from federal Anti-Kickback Statute liability. The reach of the Anti-Kickback Statute was broadened by the ACA, which, among other things, amends the intent requirement of the federal Anti-Kickback Statute such that a person or entity no longer needs to have actual knowledge of this statute or specific intent to violate it in order to have committed a violation. In addition, the ACA provides that 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 federal civil False Claims Act (discussed below).



Additionally, the federal civil monetary penalties statute imposes fines against any person or entity who, among other things, is determined to have presented or caused to be presented claims to a federal healthcare program that the person knows or should know is for an item or service that was not provided as claimed or is false or fraudulent.

The federal false claims laws, including the civil False Claims Act, impose liability on any person or entity that, among other things, knowingly presents, or causes to be presented, a false or fraudulent claim for payment by a federal healthcare program. The qui tam provisions of the civil False Claims Act allow a private individual to bring civil actions on behalf of the federal government alleging that the defendant has submitted a false claim to the federal government, and to share in any monetary recovery. In recent years, the number of suits brought by private individuals has increased dramatically. In addition, various states have enacted false claims laws analogous to the False Claims Act. Many of these state laws apply where a claim is submitted to any third-party payor and not merely a federal healthcare program. There are many potential bases for liability under the civil False Claims Act. Liability arises, primarily, when an entity knowingly submits, or causes another to submit, a false claim for reimbursement to the federal government. The civil False Claims Act has been used to assert liability on, for example, the basis of kickbacks and other improper referrals, improperly reported government pricing metrics such as Best Price or Average Manufacturer Price, improper promotion of off-label uses (i.e., uses not expressly approved by FDA in a drug's label), and allegations as to misrepresentations with respect to the services rendered. Our business activities relating to the reporting of discount and rebate information and other information affecting federal, state and third-party reimbursement of our future products, and the sale and marketing of our future products and our service arrangements or data purchases, among other activities, may be subject to scrutiny under these laws. The cost of defending any such claims, as well as any sanctions imposed, could adversely affect our financial performance.

Also, the Health Insurance Portability and Accountability Act of 1996, or HIPAA, created several new federal crimes, including healthcare fraud, and false statements relating to healthcare matters. The healthcare fraud statute prohibits knowingly and willfully executing a scheme to defraud any healthcare benefit program, including private third-party payors. The false statements statute prohibits knowingly and willfully falsifying, concealing or covering up 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 Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation.

Additionally, many states have adopted laws similar to the federal laws mentioned above, and some of these state laws are broader in scope and may apply to referral of patients for healthcare items or services reimbursed by any third-party payor, not only the Medicare and Medicaid programs.

In addition, we may be subject to, or our marketing activities may be limited by, data privacy and security regulation by both the federal government and the states in which we conduct our business. For example, HIPAA and its implementing regulations established uniform federal standards for certain "covered entities" (healthcare providers, health plans and healthcare clearinghouses) governing the conduct of certain electronic healthcare transactions and protecting the security and privacy of protected health information. The American Recovery and Reinvestment Act of 2009, commonly referred to as the economic stimulus package, included expansion of HIPAA's privacy and security standards under the Health Information Technology for Economic and Clinical Health Act, referred to as HITECH, which became effective on February 17, 2010. Among other things, HITECH makes HIPAA's security standards directly applicable to "business associates" — independent contractors or agents of covered entities that create, receive, maintain, or transmit protected health information in connection with providing a service for or 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 courts to enforce the federal HIPAA laws and seek attorneys' fees and costs associated with pursuing federal civil actions. In addition, state laws

govern the privacy and security of health information in specified circumstances, many of which differ from each other in significant ways and may not have the same effect, thus complicating compliance efforts.

Additionally, the federal Physician Payments Sunshine Act within the ACA, and its implementing regulations, require that certain manufacturers of drugs, devices, biological and medical supplies for which payment is available under Medicare, Medicaid or the Children's Health Insurance Program (with certain exceptions) to report annually information related to certain payments or other transfers of value made or distributed to physicians and teaching hospitals, or to entities or individuals at the request of, or designated on behalf of, the physicians and teaching hospitals and to report annually certain ownership and investment interests held by physicians and their immediate family members. Covered manufacturers were required to report these payments for the first reporting period to CMS by June 30, 2014. CMS published certain data reported by covered manufacturers for the first reporting period on September 30, 2014. Compliance with such requirements may require investment in infrastructure to ensure that tracking is performed properly, and some of these laws result in the public disclosure of various types of payments and relationships.

Several states have also enacted legislation requiring pharmaceutical companies to, among other things, establish marketing compliance programs, file periodic reports with the state, make periodic public disclosures on sales, marketing, pricing, clinical trials and other activities, or register their sales representatives, as well as prohibiting pharmacies and other healthcare entities from providing certain physician prescribing data to pharmaceutical companies for use in sales and marketing, and prohibiting certain other sales and marketing practices. These laws may affect our sales, marketing, and other promotional activities by imposing administrative and compliance burdens on us. If we fail to track and report as required by these laws or otherwise comply with these laws, we could be subject to the penalty provisions of the pertinent state and federal authorities. Additionally, in order to distribute products commercially, we must comply with state laws that require the registration of manufacturers and wholesale distributors of pharmaceutical products in a state, including, in certain states, manufacturers and distributors who ship products into the state even if such manufacturers or distributors have no place of business within the state. Some states also impose requirements on manufacturers and distributors to establish the pedigree of product in the chain of distribution, including some states that require manufacturers and others to adopt new technology capable of tracking and tracing product as it moves through the distribution chain.

Many of our current as well as possible future activities are potentially subject to federal and state consumer protection and unfair competition laws. We must also comply with laws that require clinical trial registration and reporting of clinical trial results on the publicly available clinical trial databank maintained by the National Institutes of Health at [www.ClinicalTrials.gov](http://www.ClinicalTrials.gov). We are subject to various environmental, health and safety regulations, including those governing laboratory procedures and the handling, use, storage, treatment and disposal of hazardous substances. From time to time, and in the future, our operations may involve the use of hazardous materials.

Because of the breadth of these laws, it is possible that some of our business activities could be subject to challenge under one or more of such laws. If our operations are found to be in violation of any of the federal and state laws described above or any other governmental regulations that apply to us, we may be subject to penalties, including potentially significant administrative, criminal and civil penalties, damages, fines, imprisonment, exclusion from participation in government healthcare programs, injunctions, recall or seizure of products, total or partial suspension of production, denial or withdrawal of pre-marketing product approvals, private "qui tam" actions brought by individual whistleblowers in the name of the government or refusal to allow us to enter into supply contracts, including government contracts, and the curtailment or restructuring of our operations, any of which could adversely affect our ability to operate our business and our results of operations.

## **Europe/Rest of World Government Regulation**

In addition to regulations in the United States, we will be subject to a variety of regulations in other jurisdictions governing, among other things, clinical trials and any commercial sales and distribution of our products.

Whether or not we obtain FDA approval for a drug product candidate, we must obtain the requisite approvals from regulatory authorities in foreign countries prior to the commencement of clinical trials or marketing of the product in those countries. Certain countries outside of the United States have a similar process that requires the submission of a clinical trial application much like the IND prior to the commencement of human clinical trials. In the European Union, for example, a clinical trial application, or CTA, must be submitted to each country's national health authority and an independent ethics committee, much like the FDA and IRB, respectively. Once the CTA is approved in accordance with a country's requirements, the clinical trial described in that CTA may proceed.

The requirements and process governing the conduct of clinical trials, product licensing, pricing and reimbursement vary from country to country. In all cases, the clinical trials must be conducted in accordance with the ICH GCP and the applicable regulatory requirements and the ethical principles that have their origin in the Declaration of Helsinki. In the European Economic Area, or EEA (which is comprised of the 27 Member States of the European Union plus Norway, Iceland and Liechtenstein), medicinal products can only be commercialized after obtaining a Marketing Authorization, or MA. There are two types of marketing authorizations: the Community MA, which is issued by the European Commission through the Centralized Procedure based on the opinion of the Committee for Medicinal Products for Human Use, a body of the European Medicines Agency, or the EMA, and which is valid throughout the entire territory of the EEA; and the National MA, which is issued by the competent authorities of the Member States of the EEA and only authorized marketing in that Member State's national territory and not the EEA as a whole.

The Centralized Procedure is mandatory for certain types of products, such as biotechnology medicinal products, orphan medicinal products, and medicinal products containing a new active substance indicated for the treatment of AIDS, cancer, neurodegenerative disorders, diabetes, auto-immune and viral diseases. The Centralized Procedure is optional for products containing a new active substance not yet authorized in the EEA, or for products that constitute a significant therapeutic, scientific or technical innovation or which are in the interest of public health in the EU. The National MA is for products not falling within the mandatory scope of the Centralized Procedure. Where a product has already been authorized for marketing in a Member State of the EEA, this National MA can be recognized in another Member States through the Mutual Recognition Procedure. If the product has not received a National MA in any Member State at the time of application, it can be approved simultaneously in various Member States through the Decentralized Procedure. Under the Decentralized Procedure an identical dossier is submitted to the competent authorities of each of the Member States in which the MA is sought, one of which is selected by the applicant as the Reference Member state, or RMS. If the RMS proposes to authorize the product, and the other Member States do not raise objections, the product is granted a national MA in all the Member States where the authorization was sought. Before granting the MA, the EMA or the competent authorities of the Member States of the EEA make an assessment of the risk-benefit balance of the product on the basis of scientific criteria concerning its quality, safety and efficacy.

In addition, we may be subject to certain health regulatory laws in the foreign countries in which we conduct business. For instance, applicable post-marketing requirements, including safety surveillance, anti-fraud and abuse laws, and implementation of corporate compliance programs and reporting of payments or transfers of value to healthcare professionals. If we fail to comply with applicable foreign regulatory requirements, we may be subject to, among other things, fines, suspension or withdrawal of regulatory approvals, product recalls, seizure of products, operating restrictions and criminal prosecution.

**Employees**

As of October 1, 2014, we had 11 full-time employees and one part-time employee. None of our employees are represented by labor unions or covered by collective bargaining agreements. We consider our relationship with our employees to be good.

**Research and Development**

We incurred \$1.1 million of research and development expenses during the period from February 26, 2014 (inception) through June 30, 2014. Our research and development efforts are focused on new product development, including pre-clinical research to develop our proprietary treatment.

**Facilities**

Our corporate headquarters are located at a 7,234 square foot subleased facility in Boston, MA, which is used primarily for corporate and research and development functions. The sublease for our corporate headquarters expires in August 2017. We have leased an office suite in New York, NY to be used for sales and marketing functions. The lease for our New York office expires in October 31, 2016. We believe that our existing facilities are sufficient for our needs for the foreseeable future.

**Legal Proceedings**

We are not currently a party to any material legal proceedings.

**MANAGEMENT****Executive Officers and Directors**

The following table sets forth certain information regarding our executive officers and directors:

Name	Age	Position(s)
<b>Executive Officers and Key Employees</b>		
Christoph Westphal, M.D., Ph.D.	46	President, Chief Executive Officer and Chairman of the Board
Jennifer Cermak, Ph.D.	42	Vice President, Program Management
Robert Hadfield	37	General Counsel and Secretary
Marina Hahn	57	President, Consumer Goods
John McCabe	45	Vice President, Finance and Treasurer
Elizabeth Woo	47	Vice President, Investor Relations
<b>Non-Employee Directors</b>		
Peter Barton Hutt	79	Director
Marc Kozin	53	Director
Stephen Kraus <sup>(1)</sup>	38	Director
Stuart Randle	55	Director
John Sculley	75	Director

(1) Stephen Kraus has notified us that he intends to resign from his position as a director upon the consummation of this offering.

**Executive Officers**

**Christoph Westphal, M.D., Ph.D.**, has served as the Chairman of our board of directors since co-founding the Company in February 2014. Dr. Westphal has served as our President and Chief Executive Officer since April 2014. Dr. Westphal has been a partner of Longwood Fund, LP, a venture capital investment fund, since 2010. Dr. Westphal co-founded Verastem, Inc. in August 2010, served as Verastem's Chairman since March 2011, and Executive Chairman since July 2013, and was Verastem's Chief Executive Officer from September 2011 to July 2013 and as its President from September 2011 until January 2013. Dr. Westphal served on the board of OvaScience, Inc. from 2011 to 2014. Dr. Westphal served as the President of SR One, the corporate venture capital arm of GlaxoSmithKline, from 2010 until 2011. Dr. Westphal has previously been involved in founding a number of biotechnology companies. Dr. Westphal co-founded Sirtris Pharmaceuticals, Inc., which was acquired by GlaxoSmithKline plc in 2008, and served as its Chief Executive Officer from 2004 to 2010. He also co-founded Alnara Pharmaceuticals, Inc., Concert Pharmaceuticals, Inc., Acceleron Pharma, Inc., serving as its Chief Executive Officer in 2003, Alnylam Pharmaceuticals, Inc., serving as its Chief Executive Officer in 2002, and Momenta Pharmaceuticals, Inc., serving as its Chief Executive Officer in 2001. Dr. Westphal serves on the Board of Fellows of Harvard Medical School and the Board of Overseers for the Boston Symphony Orchestra and is a member of the Research Advisory Council at the Massachusetts General Hospital. He earned his M.D. from Harvard Medical School, his Ph.D. in Genetics from Harvard University and his B.A. from Columbia University. The board of directors believes that Dr. Westphal's qualifications to sit on the Board include his experience as a senior executive, entrepreneur and venture capitalist and his service on the boards of directors of other life sciences companies.

**Jennifer Cermak, Ph.D.** has served as our Vice President of Program Management since March 2014. Dr. Cermak joined us from Pfizer Inc. where she was the Senior Director, R&D Business Operations, Biotherapeutics from July 2013 to March 2014. From 2008 until 2013, Dr. Cermak served as the Senior

Director, Portfolio Management at Sirtris Pharmaceuticals, Inc. and was a member of the executive management team. Dr. Cermak also served as the Director, Portfolio Management at CombinatoRx, Inc. from 2004 until 2008, Associate Director, Clinical Research & Development at Unither, a wholly-owned subsidiary of United Therapeutics, from 2003 to 2004 and a Senior Medical Research Specialist for Research Pharmaceutical Services based at Serono from 2002 to 2003. Dr. Cermak completed her postdoctoral fellowship in the Division of Ophthalmology, Department of Surgery at Harvard Medical School and earned a Ph.D. in Pathology and Laboratory Medicine from Boston University School of Medicine, a M.A., Medical Sciences from Boston University School of Medicine and a B.A. in Biology from Boston University.

**Robert Hadfield** has served as our General Counsel and Secretary since April 2014. Mr. Hadfield joins us from Cooley LLP, where he was an attorney in the firm's business department from August 2007 to August 2011 and then from April 2012 to April 2014. From August 2011 to April 2012, Mr. Hadfield served as the Corporate Counsel at Kiva Systems, Inc. prior to its acquisition by Amazon.com, Inc. Mr. Hadfield also worked as an attorney at Goulston & Storrs PC and began his career as a financial analyst in the health care investment banking group of SG Cowen Securities Corporation. Mr. Hadfield holds a B.S. degree in Finance from Providence College, and a J.D. from the Georgetown University Law Center.

**Marina Hahn** has served as our President, Consumer Goods since September 2014. Ms. Hahn joins us from Quirky Inc., where she served as Chief Strategy Officer/Chief Marketing Officer from September 2012 to December 2013. From 2003 to 2012, Ms. Hahn served as Chief Marketing Officer of Spirits Marque One LLC, makers of SVEDKA vodka and a division of Constellation Brands. From 1998 to 2001, Ms. Hahn served as Executive Vice President of J. Walter Thompson Company. Previously, Ms. Hahn was employed in various capacities by the William Morris Agency, Inc., Sony Electronics, Inc., Pepsi-Cola Company and DDB Needham Worldwide, Inc. Ms. Hahn currently serves on the Board of Directors of The Hain Celestial Group, Inc. Ms. Hahn holds a B.A. degree in French Literature and Political Science from Wellesley College.

**John McCabe** has served as our Vice President, Finance since May 2014. Mr. McCabe joins us from ARIAD Pharmaceuticals, Inc. where he was Vice President and Chief Accounting Officer from May 2013 to May 2014. Previously, Mr. McCabe served as Vice President and Corporate Controller at Charles River Associates from June 2009 to May 2013. Previously, Mr. McCabe was the Director, Strategic Business Unit Controller at Biogen Idec Inc. from 2007 until 2009. Mr. McCabe has also held positions at Performance Technologies, Inc., IP.com Inc. and Arthur Andersen LLP. Mr. McCabe earned an M.B.A. from the University of Massachusetts at Amherst and a B.S. degree in Accounting and Management Information Systems from Babson College.

**Elizabeth Woo** has served as our Vice President, Investors Relations since October 2014. Ms. Woo previously served an investor relations consultant to Cubist Pharmaceuticals, Inc. from August 2013 to December 2013 and as an investor relations consultant to Ironwood Pharmaceuticals, Inc. from February 2011 to June 2012. Ms. Woo also served as Vice President, Investor Relations at Biogen Idec Inc. from 1998 to 2010. Ms. Woo earned an M.B.A. from The Kellogg Graduate School of Management, and graduated summa cum laude and Phi Beta Kappa with bachelor degrees in Biochemistry and History from the University of California, Berkeley.

#### **Non-Employee Directors**

**Peter Barton Hutt, L.L.B., L.L.M.**, has been a member of our board of directors since March 2014. Mr. Hutt is a senior counsel at the law firm of Covington & Burling LLP and has been an attorney with that firm since 1960. He served as Chief Counsel for the U.S. Food and Drug Administration from 1971 through 1975. Mr. Hutt is a member of the Institute of Medicine of the National Academy of Sciences and teaches a course on Food and Drug Law each winter term at Harvard Law School. He co-authored the casebook used to teach Food and Drug Law and has published numerous papers on the subject. Mr. Hutt is a member of the board of directors of Momenta Pharmaceuticals, Inc., DBV Technologies, Q Therapeutics, Xoma Ltd.,

BIND Therapeutics, Inc., Concert Pharmaceuticals Inc., and several privately-held life sciences companies. During the last five years, Mr. Hutt also served as a member of the board of directors of Celera Genomics, Introgen Therapeutics, Inc. and Ista Pharmaceuticals, Inc. Mr. Hutt received his B.A., magna cum laude, from Yale University, his L.L.B. from Harvard University and his L.L.M. from New York University. Mr. Hutt's qualifications to sit on the board include his 50 years of experience and expertise in food and drug regulation, including his service at the U.S. Food and Drug Administration and at Covington & Burling LLP, and his experience serving on other boards of directors in the biopharmaceutical industry.

**Marc Kozin** has served as a member of our board of directors since October 2014. Mr. Kozin has been a Senior Advisor to L.E.K. Consulting, a global strategy consulting firm, since July 2011. Prior to that, Mr. Kozin served as president of L.E.K.'s North American practice for 15 years. Mr. Kozin currently serves as a member of the board of directors of UFP Technologies, Inc., DYAX Corp., Endocyte, Inc., OvaScience, Inc. and three privately-held companies. He also serves on the strategic advisory board for Healthcare Royalty Partners. Mr. Kozin holds a B.A., with distinction, in Economics from Duke University and an M.B.A., with distinction, from The Wharton School, University of Pennsylvania. We believe that Mr. Kozin is qualified to serve on our board due to his nearly 30 years of experience in corporate and business unit strategy consulting, merger and acquisition advisory services, and value management both domestically and internationally.

**Stephen Kraus** has served as a member of our board of directors since April 2014. Mr. Kraus has served as an investment professional at Bessemer Venture Partners, a venture capital firm, since 2004 and has been a partner since 2010. He serves on the board of directors of Ovascience, Inc. and of a number of privately-held life sciences companies. He previously served as a member of the board of directors of Verastem, Inc. from November 2010 to November 2012, Sirtris Pharmaceuticals, Inc. from 2005 to 2007 and Restore Medical, Inc. from 2005 to 2008. He holds an M.B.A. from Harvard Business School and a B.A. from Yale University. We believe that Mr. Kraus is qualified to serve on our board of directors due to his experience in the life sciences industry as a venture capitalist and his service on the boards of directors of other life sciences companies.

**Stuart Randle** has served as a member of our board of directors since October 2014. Mr. Randle served as the Chief Executive Officer of GI Dynamics Inc. from 2004 through September 2014. Prior to GI Dynamics, Mr. Randle served as the President and Chief Executive Officer of ACT Medical, Inc. from 1998 to 2001. Prior to 1998, Mr. Randle was Corporate Vice President and responsible for the northeastern region of the United States for Allegiance Healthcare Corporation. Mr. Randle previously worked for Baxter Healthcare Corporation in roles including President, New England region, General Manager of anesthesia, and various sales and marketing roles. Mr. Randle has also held various sales and engineering roles with Ingersoll-Rand Corporation. Mr. Randle is a member of the board of directors of Teleflex, Inc. and Beacon Roofing Supply, Inc. Mr. Randle earned an M.B.A. from The Kellogg Graduate School of Management at Northwestern University and a B.S. degree in Mechanical Engineering from Cornell University. We believe that Mr. Randle is qualified to serve on our board of directors due to his over 20 years' experience in the life sciences industry in engineering, sales, marketing, senior management and leadership roles in developing companies and also divisions of major medical corporations, which enables him to provide valuable insights to the board of directors regarding a variety of business, management and technical issues.

**John Sculley** has served as a member of our board of directors since August 2014. Between 1983 and 1993, Mr. Sculley served as the Chief Executive Officer of Apple Computer, Inc. From 1978 to 1983, Mr. Sculley served as Chief Executive Officer of Pepsi-Cola Company. Since leaving Apple, Mr. Sculley has focused on investing in early stage companies as a venture capitalist and co-founder of several companies. Mr. Sculley earned a Master of Business Administration degree from the Wharton School at the University of Pennsylvania and is a graduate of Brown University. We believe that Mr. Sculley is qualified to serve on our board of directors due to his experience developing consumer brands and expertise in corporate leadership.

## Board Composition

Our business and affairs are organized under the direction of our board of directors, which currently consists of six members. The primary responsibilities of our board of directors are to provide oversight, strategic guidance, counseling and direction to our management. Our board of directors meets on a regular basis and additionally as required.

Our board of directors has determined that all of our directors other than Dr. Westphal are independent directors, as defined by Rule 5605(a)(2) of the NASDAQ Listing Rules.

Effective upon the closing of this offering, we will divide our board of directors into three staggered classes, as follows:

- Class I, which will consist of \_\_\_\_\_, whose terms will expire at our annual meeting of stockholders to be held in 2016;
- Class II, which will consist of \_\_\_\_\_, and whose terms will expire at our annual meeting of stockholders to be held in 2017; and
- Class III, which will consist of \_\_\_\_\_, and whose terms will expire at our annual meeting of stockholders to be held in 2018.

At each annual meeting of stockholders to be held after the initial classification, the successors to directors whose terms then expire will serve until the third annual meeting following their election and until their successors are duly elected and qualified. The authorized size of our board of directors is currently six members. The authorized number of directors may be changed only by resolution of the board of directors. Any additional directorships resulting from an increase in the number of directors will be distributed between the three classes so that, as nearly as possible, each class will consist of one-third of the directors. This classification of the board of directors may have the effect of delaying or preventing changes in our control or management. Our directors may be removed for cause by the affirmative vote of the holders of at least 66<sup>2</sup>/3% of our voting stock.

## Role of the Board in Risk Oversight

One of the key functions of our board of directors is informed oversight of our risk management process. The board of directors does not have a standing risk management committee, but rather administers this oversight function directly through the board of directors as a whole, as well as through various standing committees of our board of directors that address risks inherent in their respective areas of oversight. In particular, our board of directors is responsible for monitoring and assessing strategic risk exposure and our audit committee has the responsibility to consider and discuss our major financial risk exposures and the steps our management has taken to monitor and control these exposures, including guidelines and policies to govern the process by which risk assessment and management is undertaken. The audit committee also monitors compliance with legal and regulatory requirements. Our nominating and corporate governance committee monitors the effectiveness of our corporate governance practices, including whether they are successful in preventing illegal or improper liability-creating conduct. Our compensation committee assesses and monitors whether any of our compensation policies and programs has the potential to encourage excessive risk-taking.

## Board Committees

Our board of directors has established an audit committee, a compensation committee and a nominating and corporate governance committee.



### **Audit Committee**

Our audit committee consists of \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_. Our board of directors has determined that each of the members of our audit committee satisfies the NASDAQ Stock Market and SEC independence requirements. Mr. \_\_\_\_\_ serves as the chair of our audit committee. The functions of this committee include, among other things:

- evaluating the performance, independence and qualifications of our independent auditors and determining whether to retain our existing independent auditors or engage new independent auditors;
- reviewing and approving the engagement of our independent auditors to perform audit services and any permissible non-audit services;
- monitoring the rotation of partners of our independent auditors on our engagement team as required by law;
- prior to engagement of any independent auditor, and at least annually thereafter, reviewing relationships that may reasonably be thought to bear on their independence, and assessing and otherwise taking the appropriate action to oversee the independence of our independent auditor;
- reviewing our annual and quarterly financial statements and reports, including the disclosures contained under the caption "Management's Discussion and Analysis of Financial Condition and Results of Operations," and discussing the statements and reports with our independent auditors and management;
- reviewing with our independent auditors and management significant issues that arise regarding accounting principles and financial statement presentation and matters concerning the scope, adequacy and effectiveness of our financial controls;
- reviewing with management and our auditors any earnings announcements and other public announcements regarding material developments;
- establishing procedures for the receipt, retention and treatment of complaints received by us regarding financial controls, accounting or auditing matters and other matters;
- preparing the report that the SEC requires in our annual proxy statement;
- reviewing and providing oversight of any related-person transactions in accordance with our related person transaction policy and reviewing and monitoring compliance with legal and regulatory responsibilities, including our code of business conduct and ethics;
- reviewing our major financial risk exposures, including the guidelines and policies to govern the process by which risk assessment and risk management is implemented;
- reviewing on a periodic basis our investment policy; and
- reviewing and evaluating on an annual basis the performance of the audit committee, including compliance of the audit committee with its charter.

Our board of directors has determined that Mr. \_\_\_\_\_ qualifies as an audit committee financial expert within the meaning of SEC regulations and meets the financial sophistication requirements of the NASDAQ Listing Rules. In making this determination, our board has considered \_\_\_\_\_. Both our independent registered public accounting firm and management periodically meet privately with our audit committee.

### **Compensation Committee**

Our compensation committee consists of \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_. Mr. \_\_\_\_\_ serves as the chair of our compensation committee. Our board of directors has determined that each of the members of our compensation committee is a non-employee director, as defined in Rule 16b-3 promulgated under the Securities Exchange Act of 1934, as amended, or Exchange Act, is an outside director, as defined pursuant to Section 162(m) of the Internal Revenue Code of 1986, as amended, or the Code, and satisfies the NASDAQ Stock Market independence requirements. The functions of this committee include, among other things:

- reviewing, modifying and approving (or if it deems appropriate, making recommendations to the full board of directors regarding) our overall compensation strategy and policies;

- reviewing and approving the compensation and other terms of employment of our executive officers;
- reviewing and approving performance goals and objectives relevant to the compensation of our executive officers and assessing their performance against these goals and objectives;
- reviewing and approving (or if it deems it appropriate, making recommendations to the full board of directors regarding) the equity incentive plans, compensation plans and similar programs advisable for us, as well as modifying, amending or terminating existing plans and programs;
- evaluating risks associated with our compensation policies and practices and assessing whether risks arising from our compensation policies and practices for our employees are reasonably likely to have a material adverse effect on us;
- reviewing and approving (or if it deems it appropriate, making recommendations to the full board of directors regarding) the type and amount of compensation to be paid or awarded to our non-employee board members;
- establishing policies with respect to votes by our stockholders to approve executive compensation as required by Section 14A of the Exchange Act and determining our recommendations regarding the frequency of advisory votes on executive compensation;
- reviewing and assessing the independence of compensation consultants, legal counsel and other advisors as required by Section 10C of the Exchange Act;
- administering our equity incentive plans;
- establishing policies with respect to equity compensation arrangements;
- reviewing the competitiveness of our executive compensation programs and evaluating the effectiveness of our compensation policy and strategy in achieving expected benefits to us;
- reviewing and approving the terms of any employment agreements, severance arrangements, change in control protections and any other compensatory arrangements for our executive officers;
- reviewing the adequacy of its charter on a periodic basis;
- reviewing with management and approving our disclosures under the caption "Compensation Discussion and Analysis" in our periodic reports or proxy statements to be filed with the SEC;
- preparing the report that the SEC requires in our annual proxy statement; and
- reviewing and assessing on an annual basis the performance of the compensation committee.

#### ***Nominating and Corporate Governance Committee***

Our nominating and corporate governance committee consists of \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_. Our board of directors has determined that each of the members of this committee, other than \_\_\_\_\_, satisfies the NASDAQ Stock Market independence requirements. Mr. \_\_\_\_\_ serves as the chair of our nominating and corporate governance committee. The functions of this committee include, among other things:

- identifying, reviewing and evaluating candidates to serve on our board of directors consistent with criteria approved by our board of directors;
- determining the minimum qualifications for service on our board of directors;
- evaluating director performance on the board and applicable committees of the board and determining whether continued service on our board is appropriate;
- evaluating, nominating and recommending individuals for membership on our board of directors;
- evaluating nominations by stockholders of candidates for election to our board of directors;
- considering and assessing the independence of members of our board of directors;
- developing a set of corporate governance policies and principles, including a code of business conduct and ethics, periodically reviewing and assessing these policies and principles and their application and recommending to our board of directors any changes to such policies and principles;
- considering questions of possible conflicts of interest of directors as such questions arise;
- reviewing the adequacy of its charter on an annual basis; and
- annually evaluating the performance of the nominating and corporate governance committee.

**Compensation Committee Interlocks and Insider Participation**

We have established a compensation committee which has and will make decisions relating to compensation of our executive officers. Our board of directors has appointed \_\_\_\_\_ and \_\_\_\_\_ to serve on the compensation committee. None of these individuals has ever been an executive officer or employee of ours. None of our executive officers currently serves, or has served during the last completed fiscal year, on the compensation committee or board of directors of any other entity that has one or more executive officers serving as a member of our board of directors or compensation committee.

**Corporate Governance**

We have adopted a code of business conduct and ethics that applies to all of our employees, officers and directors, including those officers responsible for financial reporting. Upon the closing of this offering, our code of business conduct and ethics will be available on our website at [www.flex-pharma.com](http://www.flex-pharma.com). We intend to disclose any amendments to the code, or any waivers of its requirements, on our website.

**EXECUTIVE AND DIRECTOR COMPENSATION**

Because we were formed in February 2014, we did not have or pay any compensation to our executive officers in 2013, including to our Chief Executive Officer and therefore do not have any named executive officers. However, in order to provide greater context for understanding our executive compensation, we are electing to voluntarily disclose compensation with respect to our Chief Executive Officer and our next two highest compensated executive officers who were serving in such capacity as of the date of this submission.

Our executive officers for the period ending June 30, 2014, which consist of our principal executive officer and the two other most highly compensated executive officers who were serving as executive officers as of the date of this submission, are:

- Christoph Westphal, M.D., Ph.D., our President, Chief Executive Officer and Chairman of the Board;
- John McCabe, our Vice President of Finance and Treasurer; and
- Robert Hadfield, our General Counsel and Secretary.

**Summary Compensation Table**

The following table provides information regarding the compensation provided during the period beginning on February 26, 2014 (inception) and ending on June 30, 2014 to our executive officers who were serving as executive officers as of the date of this submission:

Name and Principal Position	Salary (\$)	Option Awards (\$) <sup>(1)</sup>	All Other Compensation (\$)	Total (\$)
Christoph Westphal, M.D., Ph.D., <i>President, Chief Executive Officer, Chairman of the Board</i> <sup>(2)</sup>	\$ 112,500	—	—	\$ 112,500
John McCabe <i>Vice President of Finance and Treasurer</i> <sup>(3)</sup>	\$ 37,371	\$ 45,000	—	\$ 82,371
Robert Hadfield <i>General Counsel and Secretary</i> <sup>(4)</sup>	\$ 44,550	\$ 30,000	—	\$ 74,550

<sup>(1)</sup> In accordance with SEC rules, this column reflects the aggregate grant date fair value of the option awards granted during the respective fiscal year computed in accordance with ASC 718. Assumptions used in the calculation of these amounts are included in Note 9 to our financial statements.

<sup>(2)</sup> Dr. Westphal joined us as our President and Chief Executive Officer on April 9, 2014 at an annual salary of \$450,000. Amounts shown represent the compensation earned by Dr. Westphal during 2014 from and after his April 9, 2014 start date through June 30, 2014.

<sup>(3)</sup> Mr. McCabe joined us as our Vice President of Finance on May 12, 2014 at an annual salary of \$265,000. Amounts shown represent the compensation earned by Mr. McCabe during 2014 from his May 12, 2014 start date through June 30, 2014.

<sup>(4)</sup> Mr. Hadfield joined us as our General Counsel on April 28, 2014 at an annual salary of \$250,000. Amounts shown represent the compensation earned by Mr. Hadfield during 2014 from and after his April 28, 2014 start date through June 30, 2014.

**Annual Base Salary**

Base salaries are intended to provide a fixed level of compensation that is commensurate with their responsibilities and competitive market conditions. When considered in combination with other elements of our executive compensation, we believe our base salaries are sufficient to attract and retain an effective management team.

The annual base salary of Dr. Westphal, our chief executive officer, is set forth in his offer letter and was determined and approved by our board of directors and was effective on April 9, 2014 (the date Dr. Westphal commenced employment with us). The 2014 annual base salary of our other executive officers was included in each of their offer letters. The 2014 annual base salary for our executive officers is as follows:

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<u>Name</u>	<u>2014 Base Salary</u>
Christoph Westphal, M.D., Ph.D.	\$ 450,000
John McCabe	\$ 265,000
Robert Hadfield	\$ 250,000

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In the future, the base salary of all of our executive officers will be determined and approved by our board of directors, based on the recommendation of the compensation committee of our board of directors.

#### **Annual Performance-Based Bonus Opportunity**

In addition to base salaries, our executive officers are eligible to receive annual performance-based cash bonuses, which are designed to provide appropriate incentives to our executives to achieve defined annual corporate goals and to reward our executives for individual achievement towards these goals. The annual performance-based bonus that each executive officer is eligible to receive is set out in the individual's offer letter and will be based on the individual's target bonus, as a percentage of base salary, or target bonus percentage, and the extent to which we achieve the corporate goals and the executive achieves his personal goals, if any, established for each year.

Since our inception in February 2014, we have not paid any executives any performance-based bonuses. We anticipate the actual performance-based bonus paid to each executive, if any, will be calculated by multiplying each of the executive's annual base salary, target bonus percentage and the percentage attainment of the corporate goals and personal goals, if any, established for such year with respect to the executive. For 2014, the executive's performance-based bonus will be prorated for the duration of employment for that year. There is no minimum bonus percentage or amount established for the executive officers and, as a result, the bonus amounts vary from year to year based on corporate and individual performance.

Each executive officer's 2014 target bonus percentage is set forth below:

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<u>Name</u>	<u>Target bonus (% of base salary)</u>
Christoph Westphal, M.D., Ph.D.	50%
John McCabe	30%
Robert Hadfield	20%

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#### **Equity-Based Incentive Awards**

Our equity-based incentive awards are designed to align our longer-term interests and the longer-term interests of our shareholders with those of our employees and consultants, including our executive officers. The board of directors or the compensation committee of the board of directors, or the committee, is responsible for approving equity grants. We have generally granted stock options to our executive officers and employees as incentive compensation because we believe in using equity compensation to reward our

executive officers and other employees for stock price appreciation; however, we entered into a restricted stock purchase agreement and a restricted stock award agreement with Dr. Westphal in connection with and shortly after our formation. Vesting of equity awards is generally tied to continuous service with us and serves as an additional retention measure. We anticipate awarding to our executives an initial equity grant upon commencement of employment. Additional grants may occur periodically in order to specifically incentivize executives with respect to achieving certain corporate goals or to reward executives for exceptional performance.

Dr. Westphal was issued 14,040,000 shares of common stock in March 2014 and an additional 2,674,286 shares of common stock in April 2014. The shares issued to Dr. Westphal in March 2014 were issued in connection with our formation, pursuant to a restricted stock purchase award agreement. The shares issued to Dr. Westphal in April 2014 were issued pursuant to both a restricted stock agreement and the 2014 Equity Incentive Plan, or the 2014 pre-IPO plan, the terms of which are described below under "— Equity Benefit Plans." The shares issued to Dr. Westphal were issued at \$0.0001 per share and vest ratably on a monthly basis over four years from February 26, 2014 subject to his continued service with 25% of the shares vested on the date of grant. In the event Dr. Westphal is terminated for cause or he voluntarily terminates his relationship with the company, we have an option to repurchase his unvested shares for a period of 90 days following such termination, as described below under "— Potential Payments Upon Termination or Change of Control."

Prior to this offering, we have granted all stock options pursuant to the 2014 pre-IPO plan and all options are granted with a per share exercise price equal to no less than the fair market value of a share of our common stock on the date of grant of each award. Generally our stock option awards vest over a four-year period. On May 19, 2014, the board of directors granted an option to purchase 375,000 shares of common stock to Mr. McCabe and 250,000 shares of common stock to Mr. Hadfield, all at an exercise price of \$0.18 per share. Both option grants were made in connection with the commencement of their employment. Each grant made to Messrs. McCabe and Hadfield in May 2014 included a four-year vesting schedule subject to his continued service.

#### **Agreements with our Executive Officers**

Below are written descriptions of our offer letters with our executive officers. In addition, on September 30, 2014, Marina Hahn joined the Company as our President of Consumer Goods. A description of Ms. Hahn's offer letter is provided below.

**Christoph Westphal, M.D., Ph.D.** We entered into an offer letter with Dr. Westphal in May 2014, who has been our President and Chief Executive Officer since April 2014. The offer letter provides for an annual base salary of \$450,000 and that Dr. Westphal is eligible for an annual bonus based on company and individual performance. The target amount of Dr. Westphal's annual performance bonus equals 50% of his annual base salary and will be based on parameters determined by Dr. Westphal and the board of directors or committee. Dr. Westphal's offer letter does not include a term and Dr. Westphal will not be entitled to any cash severance if his employment is terminated by us for any reason but is entitled to certain severance and change of control benefits pursuant to his restricted stock agreements, the terms of which are described below under "— Potential Payments Upon Termination or Change of Control."

**John McCabe.** We entered into an offer letter with Mr. McCabe in April 2014, who became our Vice President, Finance and Treasurer in May 2014. The offer letter provides for an annual base salary of \$265,000 and that Mr. McCabe is eligible for an annual bonus based on company and individual performance equal to 30% of his annual base salary. Pursuant to the agreement, Mr. McCabe was granted an option to purchase 375,000 shares of our common stock, which vests over a four year period, with 25% vesting on May 12, 2015 and ratably each month thereafter. Mr. McCabe is additionally entitled to certain severance benefits, the terms of which are described below under "— Potential Payments Upon Termination or Change of Control."

**Robert Hadfield.** We entered into an offer letter with Mr. Hadfield in April 2014, who became our General Counsel and Secretary in April 2014. The offer letter provides for an annual base salary of \$250,000 and that Mr. Hadfield is eligible for an annual bonus based on company and individual performance equal to 20% of his annual base salary. Pursuant to the agreement, Mr. Hadfield was granted an option to purchase 250,000 shares of our common stock, which vests over a four-year period, with 25% vesting on April 28, 2015 and ratably each month thereafter. Mr. Hadfield is additionally entitled to certain severance benefits, the terms of which are described below under "— Potential Payments Upon Termination or Change of Control."

**Marina Hahn.** We entered into an offer letter with Ms. Hahn in September 2014, who became our President of Consumer Goods on September 30, 2014. The offer letter provides for an annual base salary of \$300,000 and that Ms. Hahn is eligible for an annual bonus based on company and individual performance. The target amount of Ms. Hahn's annual performance bonus equals 45% of her annual base salary and will be based on parameters determined by the board of directors or committee after consultation with Ms. Hahn. Pursuant to the agreement, Ms. Hahn was granted an option to purchase 1,065,725 shares of our common stock, which vests over a four-year period, with 25% vesting on September 30, 2015 and ratably each month thereafter. Under Ms. Hahn's offer letter, Ms. Hahn received a \$100,000 signing bonus. The bonus must be repaid if Ms. Hahn does not remain an employee of the company for at least one year. Ms. Hahn is additionally entitled to certain severance benefits and payments upon a change of control, the terms of which are described below under "— Potential Payments Upon Termination or Change of Control."

**Restrictive Covenant Agreements.** In connection with entering into offer letters with the Company, each of our executive officers entered into an Employee Non-Solicitation, Non-Competition, Confidential Information and Inventions Assignment Agreement with the Company, or the Restrictive Covenant Agreement, each which became effective upon signing. Under the Restrictive Covenant Agreement, the executive officer generally is subject to: (1) a perpetual covenant not to disclose or use any Company or third-party confidential information (except under limited circumstances); (2) an invention disclosure and assignment provision pursuant to which he or she agrees to assign to the Company (and will cooperate with the company to enforce) all his rights, title, and interest in and to any and all inventions (and intellectual property rights with respect thereto) made, conceived, reduced to practice or learned by him, either alone or with others, during his or her employment with the Company; (3) a non-competition provision pursuant to which he or she has agreed not to compete with any competing organization during employment and for twelve (12) months thereafter; (4) a non-solicitation provision pursuant to which he or she has agreed not to solicit any employees, independent contractors or consultants of the Company to terminate his, her or its relationship with the Company during employment and for twelve (12) months thereafter; and (5) a covenant to return all Company property to the Company upon any termination employment or upon the Company's request. In addition, each executive officer has agreed to indemnify the Company and certain other parties, for all verdicts, judgments, settlements and other losses incurred by the Company in the event the Company is the subject of any legal action resulting from the breach of any of the executive officer's obligations under the Restrictive Covenant Agreement, as well as any reasonable attorneys' fees and costs if the plaintiff is the prevailing party in any such action.

#### **Potential Payments Upon Termination or Change of Control**

Regardless of the manner in which an executive officer's service terminates, the executive officer is entitled to receive amounts earned during his term of service, including salary and unused vacation pay. Pursuant to their offer letters, each of Messrs. McCabe and Hadfield will be entitled to three months of their then current base salary if they are terminated for any reason, provided that such severance payments will cease at such time as they become employed by another company.

Under Dr. Westphal's restricted stock purchase agreements, we may only exercise our repurchase rights with respect to unvested shares of common stock if Dr. Westphal's employment is terminated by us for cause or Dr. Westphal terminates his employment for any reason, in each case, within 90 days of such termination.

In addition, Dr. Westphal's shares shall vest with respect to all of the shares held by Dr. Westphal in the event he is terminated by us without cause or due to his death or disability, or upon the occurrence of a corporate transaction. For purposes of the Dr. Westphal's restricted stock agreements:

- "cause" generally means (i) Dr. Westphal's willful failure to perform, or gross negligence in the performance of, Dr. Westphal's material duties and responsibilities to us which is not remedied within 30 days of written notice thereof; (ii) material breach by Dr. Westphal of any material provision of the restricted stock agreements or any other agreement with us which is not remedied within 30 days of written notice thereof; (iii) fraud, embezzlement or other dishonesty with respect to us, which, in the case of such other dishonesty, causes or could reasonably be expected to cause material harm to us; or (iv) Dr. Westphal's conviction of a felony.
- "corporate transaction" includes (A) an acquisition, which generally means (i) any consolidation or merger of us with or into any other corporation or other entity or person, or any other corporate reorganization; or (ii) any transaction or series of related transactions to which the we are a party in which in excess of 50% of our voting power is transferred; and (B) any asset transfer, which generally means a sale, lease, exclusive license or other disposition of all or substantially all of our assets.

Under Ms. Hahn's offer letter, if during the period beginning 30 days prior to and ending twelve (12) months following a change of control, we terminate Ms. Hahn's employment other than for cause or Ms. Hahn terminates her employment for good reason, then an additional 50% of the shares of common stock subject to Ms. Hahn's initial stock option shall automatically vest. Additionally, Ms. Hahn will continue to receive her annual base salary for a period of nine months if her employment is terminated at any time by us without cause or she resigns for good reason. For purposes of Ms. Hahn's offer letter:

- "cause" generally means (i) Ms. Hahn's willful failure to perform, or gross negligence in the performance of, her material duties and responsibilities which is not remedied within 30 days of written notice thereof; (ii) a material breach by Ms. Hahn of her offer letter, her Restrictive Covenant Agreement or other material, written agreement with us that is not remedied within 30 days of written notice thereof; (iii) Ms. Hahn's fraud, embezzlement or other dishonesty with respect to us, which, in the case of such other dishonesty, causes or could reasonably be expected to cause material harm to us; or (iv) Ms. Hahn's conviction of a felony or of any other crime involving fraud, dishonesty or moral turpitude.
- "good reason" generally means Ms. Hahn's resignation for up to 60 days following her becoming aware of the occurrence of one of the following events which is not cured by us after having provided 30 days of written notice: (i) a material reduction in Ms. Hahn's duties or responsibilities, (ii) a reduction in Ms. Hahn's title, except a change in title as a result of a change of control; (iii) a reduction of at least 10% of Ms. Hahn's gross base salary (unless the reduction was applicable to all of our executives on an equivalent basis) or (iv) a relocation of Ms. Hahn's principal workplace outside of New York, New York.
- "change of control" generally means (i) the acquisition of securities of the company representing a majority or more of the combined voting power of our outstanding securities, other than an acquisition of securities for investment purposes pursuant to a bona fide financing; (ii) our merger or consolidation with any other corporation in which the holders of our voting securities prior to the merger or consolidation cease to own more than 50% of the total voting securities of the surviving corporation; or (iii) the sale or disposition by us of all or substantially all of our assets other than a sale or disposition of assets to an affiliate or a holder of all or a majority of our securities.



**Outstanding Equity Awards at June 30, 2014**

The following table sets forth certain information regarding outstanding equity awards granted to our executive officers that remain outstanding as of June 30, 2014.

Name	Grant Date	Option Awards <sup>(1)</sup>				Stock Awards		Equity Incentive Plan Awards	
		Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Option Exercise Price Per Share <sup>(2)</sup>	Option Expiration Date	Number of shares or units of stock that have not vested (#)	Market value of shares or units of stock that have not vested (\$)	Number of unearned shares that have not vested (#)	Market value of unearned shares that have not vested (\$)
Christoph Westphal, M.D., Ph.D.	3/5/2014	—	—	—	—	9,652,500 <sup>(3)</sup>	—	—	—
	4/9/2014	—	—	—	—	—	—	1,838,575 <sup>(3)</sup>	—
John McCabe	5/19/2014	—	375,000 <sup>(4)</sup>	\$ 0.18	5/18/2024	—	—	—	—
Robert Hadfield	5/19/2014	—	250,000 <sup>(5)</sup>	\$ 0.18	5/18/2024	—	—	—	—

- (1) All of the option awards listed in the table above were granted under the 2014 pre-IPO plan, the terms of which are described below under "— Equity Benefit Plans." Except as otherwise indicated, each option award becomes exercisable as it becomes vested and all vesting is subject to the executive's continuous service with us through the vesting dates.
- (2) All of the option awards listed in the table above were granted with a per share exercise price equal to the fair market value of one share of our common stock on the date of grant, as determined in good faith by our board of directors with the assistance of a third-party valuation expert.
- (3) The shares vest at the rate of 1/4<sup>th</sup> of the total number of shares on the date of issuance, with 1/48<sup>th</sup> of the shares vesting monthly over four years measured from February 26, 2014, and subject to vesting acceleration as described above under "— Potential Payments Upon Termination or Change of Control."
- (4) The option vests at the rate of 1/4<sup>th</sup> of the total number of shares subject to the option one year after May 12, 2014, with 1/48<sup>th</sup> of the shares vesting monthly thereafter over the next three years.
- (5) The option vests at the rate of 1/4<sup>th</sup> of the total number of shares subject to the option one year after April 28, 2014, with 1/48<sup>th</sup> of the shares vesting monthly thereafter over the next three years.

**Prerequisites, Health, Welfare and Retirement Benefits**

Our executive officers are eligible to participate in our employee benefit plans, including our medical and dental insurance plans, in each case on the same basis as all of our other employees. We provide a 401(k) plan to our employees, including our executive officers, as discussed in the section below entitled "— 401(k) Plan."

**401(k) Plan**

We maintain a tax-qualified retirement plan that provides eligible U.S. employees with an opportunity to save for retirement on a tax advantaged basis. Eligible employees are able to defer eligible compensation up to certain Code limits, which are updated annually. We have the ability to make matching and discretionary contributions to the 401(k) plan but have not done so to date. Employee contributions are allocated to each participant's individual account and are then invested in selected investment alternatives according to the participants' directions. Employees are immediately and fully vested in their own contributions. The 401(k) plan is intended to be qualified under Section 401(a) of the Code, with the related trust intended to be tax exempt under Section 501(a) of the Code. As a tax-qualified retirement plan, contributions to the 401(k) plan are deductible by us when made, and contributions and earnings on those amounts are not taxable to the employees until withdrawn or distributed from the 401(k) plan.

**Non-qualified Deferred Compensation**

None of our executive officers participate in or have account balances in non-qualified defined contribution plans or other non-qualified deferred compensation plans maintained by us. Our board of directors may elect to provide our officers and other employees with non-qualified defined contribution or other

non-qualified deferred compensation benefits in the future if it determines that doing so is in our best interests.

## Equity Benefit Plans

### 2014 Equity Incentive Plan

Our board of directors adopted the 2014 plan in 2014, and we expect our stockholders will approve the plan prior to this offering and that the 2014 plan will become effective before and contingent upon the date of the underwriting agreement pursuant to which our common stock is priced for our initial public offering. Once the 2014 plan is effective, no further grants will be made under the 2014 pre-IPO plan.

**Awards.** The 2014 plan provides for the grant of incentive stock options, or ISOs, non-statutory stock options, or NSOs, stock appreciation rights, restricted stock awards, restricted stock unit awards, performance based stock awards, and other forms of equity compensation, collectively stock awards. Additionally, the 2014 plan provides for the grant of performance cash awards. ISOs may be granted only to employees of us and our affiliates. All other awards may be granted to employees, including officers, and to non-employee directors and consultants of us and our affiliates.

**Share Reserve.** Initially, the aggregate number of shares of our common stock that may be issued pursuant to stock awards under the 2014 plan after the 2014 plan becomes effective is the sum of (i) shares, plus (ii) the number of shares remaining available for grant under our 2014 pre-IPO plan at the time our 2014 plan becomes effective, plus (iii) any shares subject to outstanding stock options or other stock awards that would have otherwise returned to our 2014 pre-IPO plan (such as upon the expiration or termination of a stock award prior to vesting). Additionally, the number of shares of our common stock reserved for issuance under our 2014 plan will automatically increase on January 1 of each year, beginning on January 1, (assuming the 2014 plan becomes effective in 2014), and continuing through and including January 1, , by % of the total number of shares of our capital stock outstanding on December 31 of the preceding calendar year, or a lesser number of shares determined by our board of directors. The maximum number of shares that may be issued upon the exercise of ISOs under our 2014 plan is shares.

No person may be granted stock awards covering more than shares of our common stock under our 2014 plan during any calendar year pursuant to stock options, stock appreciation rights and other stock awards whose value is determined by reference to an increase over an exercise or strike price of at least 100% of the fair market value on the date the stock award is granted. Additionally, no person may be granted in a calendar year a performance stock award covering more than shares or a performance cash award having a maximum value in excess of \$ . Such limitations are designed to help assure that any deductions to which we would otherwise be entitled with respect to such awards will not be subject to the \$1,000,000 limitation on the income tax deductibility of compensation paid to any covered executive officer imposed by Section 162(m) of the Code.

If a stock award granted under the 2014 plan expires or otherwise terminates without being exercised in full, or is settled in cash, the shares of our common stock not acquired pursuant to the stock award again will become available for subsequent issuance under the 2014 plan. In addition, the following types of shares under the 2014 plan may become available for the grant of new stock awards under the 2014 plan: (1) shares that are forfeited to or repurchased by us prior to becoming fully vested; (2) shares withheld to satisfy income or employment withholding taxes; or (3) shares used to pay the exercise or purchase price of a stock award. Shares issued under the 2014 plan may be previously unissued shares or reacquired shares bought by us on the open market. As of the date hereof, no awards have been granted and no shares of our common stock have been issued under the 2014 plan.

**Administration.** Our board of directors, or a duly authorized committee thereof, has the authority to administer the 2014 plan. Our board of directors may also delegate to one or more of our officers the authority to (1) designate employees (other than himself or herself) to be recipients of certain stock awards,

and (2) determine the number of shares of common stock to be subject to such stock awards. Subject to the terms of the 2014 plan, our board of directors or the authorized committee, referred to herein as the plan administrator, determines recipients, dates of grant, the numbers and types of stock awards to be granted and the terms and conditions of the stock awards, including the period of their exercisability and vesting schedule applicable to a stock award. Subject to the limitations set forth below, the plan administrator will also determine the exercise price, strike price or purchase price of awards granted and the types of consideration to be paid for the award.

The plan administrator has the authority to modify outstanding awards under our 2014 plan. Subject to the terms of our 2014 plan, the plan administrator has the authority to reduce the exercise, purchase or strike price of any outstanding stock award, cancel any outstanding stock award in exchange for new stock awards, cash or other consideration, or take any other action that is treated as a repricing under generally accepted accounting principles, with the consent of any adversely affected participant.

**Stock Options.** Incentive and non-statutory stock options are granted pursuant to stock option agreements adopted by the plan administrator. The plan administrator determines the exercise price for a stock option, within the terms and conditions of the 2014 plan, provided that the exercise price of a stock option generally cannot be less than 100% of the fair market value of our common stock on the date of grant. Options granted under the 2014 plan vest at the rate specified by the plan administrator.

The plan administrator determines the term of stock options granted under the 2014 plan, up to a maximum of 10 years. Unless the terms of an option holder's stock option agreement provide otherwise, if an option holder's service relationship with us, or any of our affiliates, ceases for any reason other than disability, death or cause, the option holder may generally exercise any vested options for a period of three months following the cessation of service. The option term may be extended in the event that the issuance of shares of our common stock upon the exercise of the option or the same of such shares following such a termination of service is prohibited by applicable securities laws or our insider trading policy. If an optionholder's service relationship with us or any of our affiliates ceases due to disability or death, or an optionholder dies within a certain period following cessation of service, the optionholder or a beneficiary may generally exercise any vested options for a period of 12 months in the event of disability and 18 months in the event of death. In the event of a termination for cause, options generally terminate immediately upon the termination of the individual for cause. In no event may an option be exercised beyond the expiration of its term.

Acceptable consideration for the purchase of common stock issued upon the exercise of a stock option will be determined by the plan administrator and may include (1) cash, check, bank draft or money order, (2) a broker-assisted cashless exercise, (3) the tender of shares of our common stock previously owned by the optionholder, (4) a net exercise of the option if it is an NSO, and (5) other legal consideration approved by the plan administrator.

Unless the plan administrator provides otherwise, options generally are not transferable except by will, the laws of descent and distribution, or pursuant to a domestic relations order. An optionholder may designate a beneficiary, however, who may exercise the option following the optionholder's death.

**Restricted Stock Awards.** Restricted stock awards are granted pursuant to restricted stock award agreements or restricted stock purchase agreements adopted by the plan administrator. Restricted stock awards may be granted in consideration for (1) cash, check, bank draft or money order, (2) services rendered to us or our affiliates, or (3) any other form of legal consideration. Common stock acquired under a restricted stock award may, but need not, be subject to a share repurchase option in our favor in accordance with a vesting schedule to be determined by the plan administrator. Rights to acquire shares under a restricted stock award may be transferred only upon such terms and conditions as set by the plan administrator. Except as otherwise provided in the applicable award agreement, restricted stock awards that have not vested will be forfeited upon the participant's cessation of continuous service for any reason.

**Tax Limitations On Incentive Stock Options.** The aggregate fair market value, determined at the time of grant, of our common stock with respect to ISOs that are exercisable for the first time by an optionholder during any calendar year under all of our stock plans may not exceed \$100,000. Options or portions thereof that exceed such limit will generally be treated as NSOs. No ISO may be granted to any person who, at the time of the grant, owns or is deemed to own stock possessing more than 10% of our total combined voting power or that of any of our affiliates unless (1) the option exercise price is at least 110% of the fair market value of the stock subject to the option on the date of grant, and (2) the term of the ISO does not exceed five years from the date of grant.

**Restricted Stock Unit Awards.** Restricted stock unit awards are granted pursuant to restricted stock unit award agreements adopted by the plan administrator. Restricted stock unit awards may be granted in consideration for any form of legal consideration. A restricted stock unit award may be settled by cash, delivery of stock, a combination of cash and stock as deemed appropriate by the plan administrator, or in any other form of consideration set forth in the restricted stock unit award agreement. Additionally, dividend equivalents may be credited in respect of shares covered by a restricted stock unit award. Except as otherwise provided in the applicable award agreement, restricted stock awards that have not vested will be forfeited upon the participant's cessation of continuous service for any reason.

**Stock Appreciation Rights.** Stock appreciation rights are granted pursuant to stock appreciation grant agreements adopted by the plan administrator. The plan administrator determines the strike price for a stock appreciation right, which generally cannot be less than 100% of the fair market value of our common stock on the date of grant. Upon the exercise of a stock appreciation right, we will pay the participant an amount equal to the product of (1) the excess of the per share fair market value of our common stock on the date of exercise over the strike price, multiplied by (2) the number of shares of common stock with respect to which the stock appreciation right is exercised. A stock appreciation right granted under the 2014 plan vests at the rate specified in the stock appreciation right agreement as determined by the plan administrator.

The plan administrator determines the term of stock appreciation rights granted under the 2014 plan, up to a maximum of ten years. Unless the terms of a participant's stock appreciation right agreement provides otherwise, if a participant's service relationship with us or any of our affiliates ceases for any reason other than cause, disability or death, the participant may generally exercise any vested stock appreciation right for a period of three months following the cessation of service. The stock appreciation right term may be further extended in the event that exercise of the stock appreciation right following such a termination of service is prohibited by applicable securities laws. If a participant's service relationship with us, or any of our affiliates, ceases due to disability or death, or a participant dies within a certain period following cessation of service, the participant or a beneficiary may generally exercise any vested stock appreciation right for a period of 12 months in the event of disability and 18 months in the event of death. In the event of a termination for cause, stock appreciation rights generally terminate immediately upon the occurrence of the event giving rise to the termination of the individual for cause. In no event may a stock appreciation right be exercised beyond the expiration of its term.

**Performance Awards.** The 2014 plan permits the grant of performance-based stock and cash awards that may qualify as performance-based compensation that is not subject to the \$1,000,000 limitation on the income tax deductibility of compensation paid to a covered executive officer imposed by Section 162(m) of the Code. To help assure that the compensation attributable to performance-based awards will so qualify, our compensation committee can structure such awards so that stock or cash will be issued or paid pursuant to such award only after the achievement of certain pre-established performance goals during a designated performance period.

The performance goals that may be selected include one or more of the following: (1) earnings (including earnings per share and net earnings); (2) earnings before interest, taxes and depreciation; (3) earnings before interest, taxes, depreciation and amortization; (4) earnings before interest, taxes, depreciation,

amortization and legal settlements; (5) earnings before interest, taxes, depreciation, amortization, legal settlements and other income (expense); (6) earnings before interest, taxes, depreciation, amortization, legal settlements, other income (expense) and stock-based compensation; (7) earnings before interest, taxes, depreciation, amortization, legal settlements, other income (expense), stock-based compensation and changes in deferred revenue; (8) total stockholder return; (9) return on equity or average stockholder's equity; (10) return on assets, investment or capital employed; (11) stock price; (12) margin (including gross margin); (13) income (before or after taxes); (14) operating income; (15) operating income after taxes; (16) pre-tax profit; (17) operating cash flow; (18) sales or revenue targets; (19) increases in revenue or product revenue; (20) expenses and cost reduction goals; (21) improvement in or attainment of working capital levels; (22) economic value added (or an equivalent metric); (23) market share; (24) cash flow; (25) cash flow per share; (26) share price performance; (27) debt reduction; (28) implementation or completion of projects or processes (including, without limitation, clinical trial initiation, clinical trial enrollment, clinical trial results, new and supplemental indications for existing products, regulatory filing submissions, regulatory filing acceptances, regulatory or advisory committee interactions, regulatory approvals and product supply); (29) user satisfaction; (30) stockholders' equity; (31) capital expenditures; (32) debt levels; (33) operating profit or net operating profit; (34) workforce diversity; (35) growth of net income or operating income; (36) billings; (37) bookings; (38) the number of users, including but not limited to unique users; (39) employee retention; (40) initiation of phases of clinical trials and/or studies by specific dates; (41) patient enrollment rates; (42) budget management; (43) submission to, or approval by, a regulatory body (including, but not limited to the U.S. Food and Drug Administration) of an applicable filing or a drug product candidate; (44) regulatory milestones; (45) progress of internal research or clinical programs; (46) progress of partnered programs; (47) partner satisfaction; (48) timely completion of clinical trials; (49) submission of INDs and NDAs and other regulatory achievements; (50) research progress, including the development of programs; (51) strategic partnerships or transactions (including in-licensing and out-licensing of intellectual property, and (52) to the extent that an award is not intended to comply with Section 162(m) of the Code, other measures of performance selected by our board of directors.

The performance goals may be based on a company-wide basis, with respect to one or more business units, divisions, affiliates, or business segments, and in either absolute terms or relative to the performance of one or more comparable companies or the performance of one or more relevant indices. Unless specified otherwise (i) in the award agreement at the time the award is granted or (ii) in such other document setting forth the performance goals at the time the goals are established, we will appropriately make adjustments in the method of calculating the attainment of performance goals as follows: (1) to exclude restructuring and/or other nonrecurring charges; (2) to exclude exchange rate effects; (3) to exclude the effects of changes to generally accepted accounting principles; (4) to exclude the effects of any statutory adjustments to corporate tax rates; (5) to exclude the effects of any "extraordinary items" as determined under generally accepted accounting principles; (6) to exclude the dilutive effects of acquisitions or joint ventures; (7) to assume that any business divested by us achieved performance objectives at targeted levels during the balance of a performance period following such divestiture; (8) to exclude the effect of any change in the outstanding shares of our common stock by reason of any stock dividend or split, stock repurchase, reorganization, recapitalization, merger, consolidation, spin-off, combination or exchange of shares or other similar corporate change, or any distributions to common stockholders other than regular cash dividends; (9) to exclude the effects of stock based compensation and the award of bonuses under our bonus plans; (10) to exclude costs incurred in connection with potential acquisitions or divestitures that are required to be expensed under generally accepted accounting principles; (11) to exclude the goodwill and intangible asset impairment charges that are required to be recorded under generally accepted accounting principles; (12) to exclude the effect of any other unusual, non-recurring gain or loss or other extraordinary item; and (13) to exclude the effects of the timing of acceptance for review and/or approval of submissions to the FDA or any other regulatory body. In addition, we retain the discretion to reduce or eliminate the compensation or economic benefit due upon attainment of the goals. The performance goals may differ from participant to participant and from award to award.

**Other Stock Awards.** The plan administrator may grant other awards based in whole or in part by reference to our common stock. The plan administrator will set the number of shares under the stock award and all other terms and conditions of such awards.

**Changes to Capital Structure.** In the event that there is a specified type of change in our capital structure, such as a stock split or recapitalization, appropriate adjustments will be made to (a) the class and maximum number of shares reserved for issuance under the 2014 plan, (b) the class and maximum number of shares by which the share reserve may increase automatically each year, (c) the class and maximum number of shares that may be issued upon the exercise of ISOs, (d) the class and maximum number of shares subject to stock awards that can be granted in a calendar year (as established under the 2014 plan pursuant to Section 162(m) of the Code) and (e) the class and number of shares and exercise price, strike price, or purchase price, if applicable, of all outstanding stock awards.

**Corporate Transactions.** In the event of certain specified significant corporate transactions, the plan administrator has the discretion to take any of the following actions with respect to stock awards:

- arrange for the assumption, continuation or substitution of a stock award by a surviving or acquiring entity or parent company;
- arrange for the assignment of any reacquisition or repurchase rights held by us to the surviving or acquiring entity or parent company;
- accelerate the vesting of the stock award and provide for its termination prior to the effective time of the corporate transaction;
- arrange for the lapse of any reacquisition or repurchase right held by us;
- accelerate the vesting of the stock award and provide for its termination prior to the effective time of the corporate transaction;
- arrange for the lapse of any reacquisition or repurchase right held by us;
- cancel or arrange for the cancellation of the stock award in exchange for such cash consideration, if any, as our board of directors may deem appropriate; or
- make a payment equal to the excess of (a) the value of the property the participant would have received upon exercise of the stock award over (b) the exercise price otherwise payable in connection with the stock award.

Our plan administrator is not obligated to treat all stock awards, even those that are of the same type, in the same manner.

Under the 2014 plan, a corporate transaction is generally the consummation of (i) a sale or other disposition of all or substantially all of our consolidated assets, (ii) a sale or other disposition of at least 90% of our outstanding voting securities, (iii) a merger, consolidation or similar transaction following which we are not the surviving corporation, or (iv) a merger, consolidation or similar transaction following which we are the surviving corporation but the shares of our common stock outstanding immediately prior to such transaction are converted or exchanged into other property by virtue of the transaction.

**Change of Control.** The plan administrator may provide, in an individual award agreement or in any other written agreement between a participant and us that the stock award will be subject to additional acceleration of vesting and exercisability in the event of a change of control. Under the 2014 plan, a change of control is generally (i) the acquisition by a person or entity of more than 50% of our combined voting power other than by merger, consolidation or similar transaction; (ii) a consummated merger, consolidation or similar transaction immediately after which our stockholders cease to own more than 50% of the combined voting power of the surviving entity; (iii) a consummated sale, lease or exclusive license or other disposition of all or substantially of our consolidated assets; or (iv) our complete liquidation or dissolution (or the approval by our stockholders or our board of directors of our complete liquidation or dissolution).

**Amendment and Termination.** Our board of directors has the authority to amend, suspend, or terminate our 2014 plan, provided that such action does not materially impair the existing rights of any participant without such participant's written consent. No ISOs may be granted after the tenth anniversary of the date our board of directors adopted our 2014 plan.

#### **2014 Equity Incentive Plan (Pre-IPO Plan)**

Our board of directors and our stockholders approved our 2014 pre-IPO plan, which became effective in March 2014. As of June 30, 2014, there were 1,224,875 shares remaining available for the grant of stock awards under our 2014 pre-IPO plan and there were outstanding stock awards covering a total of 4,989,410 shares that were granted under our 2014 pre-IPO plan.

After the effective date of the 2014 plan, no additional awards will be granted under the 2014 pre-IPO plan, and all awards granted under the 2014 pre-IPO plan that are repurchased, forfeited, expire, are cancelled or otherwise not issued will become available for grant under the 2014 plan in accordance with its terms.

**Stock Awards.** The 2014 pre-IPO plan provides for the grant of stock awards, which include ISOs, NSOs, restricted stock awards, restricted stock unit awards and stock appreciation rights. ISOs may be granted only to employees of us and our affiliates. All other awards may be granted to employees, including officers, and to non-employee directors and consultants of us and our affiliates.

**Share Reserve.** The aggregate number of shares of our common stock originally reserved for issuance pursuant to stock awards under the 2014 pre-IPO plan was 500,000 shares. In April 2014, our board of directors approved an increase in the 2014 pre-IPO plan reserve by 5,714,285 shares and in September 2014 our board of directors approved an increase in the 2014 pre-IPO plan reserve by 2,651,350 shares. The maximum number of shares that may be issued upon the exercise of ISOs under our 2014 pre-IPO plan was 8,865,635 shares.

If a stock award granted under the 2014 pre-IPO plan expires or otherwise terminates without being exercised in full, or is settled in cash, the shares of our common stock not acquired pursuant to the stock award again will become available for subsequent issuance under the 2014 pre-IPO plan. In addition, the following types of shares under the 2014 pre-IPO plan may become available for the grant of new stock awards under the 2014 pre-IPO plan: (1) shares that are forfeited to or repurchased by us prior to becoming fully vested; (2) shares withheld to satisfy income or employment withholding taxes; or (3) shares used to pay the exercise or purchase price of a stock award. Shares issued under the 2014 pre-IPO plan may be previously unissued shares or reacquired shares bought by us on the open market.

**Administration.** Our board of directors, or a duly authorized committee thereof, has the authority to administer the 2014 pre-IPO plan. Our board of directors may also delegate to one or more of our officers the authority to (1) designate officers and employees to be recipients of certain stock awards; provided, however, that an officer may not grant a stock award to himself, and (2) determine the number of shares of common stock to be subject to such stock awards. Subject to the terms of the 2014 pre-IPO plan, our board of directors or the authorized committee, referred to herein as the plan administrator, determines recipients, dates of grant, the numbers and types of stock awards to be granted, and the terms and conditions of the stock awards, including the period of their exercisability and vesting schedule applicable to a stock award. Subject to the limitations set forth below, the plan administrator will also determine the exercise price, strike price or purchase price of awards granted, and the types of consideration to be paid for the award.

The plan administrator has the authority to modify outstanding awards under our 2014 pre-IPO plan. Subject to the terms of our 2014 pre-IPO plan, the plan administrator has the authority to reduce the exercise or strike price of any outstanding stock award, cancel any outstanding stock award in exchange for new stock awards, cash or other consideration, or take any other action that is treated as a repricing under generally accepted accounting principles, with the consent of any adversely affected participant.

**Stock Options.** ISOs and NSOs are granted pursuant to stock option agreements adopted by the plan administrator. The plan administrator determines the exercise price for a stock option, within the terms and conditions of the 2014 pre-IPO plan, provided that the exercise price of a stock option generally cannot be less than 100% of the fair market value of our common stock on the date of grant. Options granted under the 2014 pre-IPO plan vest at the rate specified by the plan administrator.

The plan administrator determines the term of stock options granted under the 2014 pre-IPO plan, up to a maximum of 10 years. Unless the terms of an option holder's stock option agreement provide otherwise, if an option holder's service relationship with us or any of our affiliates ceases for any reason other than disability, death or cause, the option holder may generally exercise any vested options for a period of three months following the cessation of service. The option term may be extended in the event that exercise of the option following such a termination of service is prohibited by applicable securities laws or our insider trading policy. If an optionholder's service relationship with us or any of our affiliates ceases due to disability or death, or an optionholder dies within a certain period following cessation of service, the optionholder or a beneficiary may generally exercise any vested options for a period of 12 months in the event of disability and 18 months in the event of death. In the event of a termination for cause, options generally terminate immediately upon the termination of the individual for cause. In no event may an option be exercised beyond the expiration of its term.

Acceptable consideration for the purchase of common stock issued upon the exercise of a stock option will be determined by the plan administrator and may include (1) cash, check, bank draft or money order, (2) a broker-assisted cashless exercise, (3) the tender of shares of our common stock previously owned by the optionholder, (4) a net exercise of the option if it is an NSO, and (5) other legal consideration approved by the plan administrator.

Unless the plan administrator provides otherwise, options generally are not transferable except by will, the laws of descent and distribution, or pursuant to a domestic relations order. An optionholder may designate a beneficiary, however, who may exercise the option following the optionholder's death.

**Restricted Stock Awards.** Restricted stock awards are granted pursuant to restricted stock award agreements adopted by the plan administrator. Restricted stock awards may be granted in consideration for (1) past or future services rendered to us or our affiliates, or (2) any other form of legal consideration. Common stock acquired under a restricted stock award may, but need not, be subject to a share repurchase option in our favor in accordance with a vesting schedule to be determined by the plan administrator. Rights to acquire shares under a restricted stock award may be transferred only upon such terms and conditions as set by the plan administrator. Except as otherwise provided in the applicable award agreement, restricted stock awards that have not vested will be forfeited upon the participant's cessation of continuous service for any reason.

**Tax Limitations On Incentive Stock Options.** The aggregate fair market value, determined at the time of grant, of our common stock with respect to ISOs that are exercisable for the first time by an optionholder during any calendar year under all of our stock plans may not exceed \$100,000. Options, or portions thereof, that exceed such limit will generally be treated as NSOs. No ISO may be granted to any person who, at the time of the grant, owns or is deemed to own stock possessing more than 10% of our total combined voting power or that of any of our affiliates unless (1) the option exercise price is at least 110% of the fair market value of the stock subject to the option on the date of grant and (2) the option is not exercisable after the expiration of five years from the date of grant.

**Changes to Capital Structure.** In the event that there is a specified type of change in our capital structure, such as a stock split or recapitalization, appropriate adjustments will be made to (a) the class and maximum number of shares reserved for issuance under the 2014 pre-IPO plan, (b) the class and maximum number of shares that may be issued upon the exercise of ISOs, and (c) the class and number of shares and exercise price, strike price, or purchase price, if applicable, of all outstanding stock awards.



**Corporate Transactions.** In the event of certain specified significant corporate transactions, the plan administrator has the discretion to take any of the following actions with respect to stock awards:

- arrange for the assumption, continuation or substitution of a stock award by a surviving or acquiring entity or parent company;
- arrange for the assignment of any reacquisition or repurchase rights held by us to the surviving or acquiring entity or parent company;
- accelerate the vesting of the stock award and provide for its termination prior to the effective time of the corporate transaction;
- arrange for the lapse of any reacquisition or repurchase right held by us;
- cancel or arrange for the cancellation of the stock award to the extent not vested or exercised prior to the effective time of the corporate transaction; or
- make a payment equal to the excess of (1) the value of the property the participant would have received upon exercise of the stock award over (2) the exercise price otherwise payable in connection with the stock award.

Our plan administrator is not obligated to treat all stock awards, even those that are of the same type, in the same manner.

Under the 2014 pre-IPO plan, a corporate transaction is generally the consummation of (1) a sale or other disposition of all or substantially all of our consolidated assets, (2) a sale or other disposition of at least 50% of our outstanding securities, (3) a merger, consolidation or similar transaction following which we are not the surviving corporation, or (4) a merger, consolidation or similar transaction following which we are the surviving corporation but the shares of our common stock outstanding immediately prior to such transaction are converted or exchanged into other property by virtue of the transaction.

**Change in Control.** The plan administrator may provide, in an individual award agreement or in any other written agreement between a participant and us that the stock award will be subject to additional acceleration of vesting and exercisability in the event of a change in control. Under the 2014 pre-IPO plan, a change in control is generally (1) the acquisition by a person or entity of more than 50% of our combined voting power other than by merger, consolidation or similar transaction; (2) a consummated merger, consolidation or similar transaction immediately after which our stockholders cease to own more than 50% of the combined voting power of the surviving entity; (3) a complete dissolution or liquidation; or (4) a consummated sale, lease or exclusive license or other disposition of all or substantially of our consolidated assets.

**Amendment and Termination.** The 2014 pre-IPO plan will terminate on March 21, 2024. However, our board of directors has the authority to amend, suspend, or terminate our 2014 pre-IPO plan, provided that such action does not materially impair the existing rights of any participant without such participant's written consent.

#### **Director Compensation**

Historically, we have not paid cash or equity compensation to directors who are also our employees for service on our board of directors, nor have we paid cash or equity compensation to our non-employee directors who are associated with our principal stockholders for service on our board of directors. We have reimbursed and will continue to reimburse all of our non-employee directors for their travel, lodging and other reasonable expenses incurred in attending meetings of our board of directors and committees of our board of directors.

Beginning in August 2014, we began paying our non-employee directors, other than Mr. Kraus, an annual cash retainer of \$40,000 payable quarterly in arrears as well as reimbursement for their reasonable expenses incurred in attending meetings. Upon joining our board of directors, Mr. Hutt was granted an

initial option under our 2014 pre-IPO plan to purchase 120,000 shares, and then in October 2014 was granted an additional option under our 2014 pre-IPO plan to purchase 30,000 shares. Upon joining our board of directors, Messrs. Kozin, Randle and Sculley were each granted an option under our 2014 pre-IPO plan to purchase 150,000 shares. Each of Mr. Hutt's options vest over a four-year period measured from April 9, 2014, subject to his continued service to us. Mr. Sculley's options vest over a four-year period measured from August 25, 2014, subject to his continued service to us. Messrs. Kozin and Randle's options vest over a four-year period measured from October 15, 2014, subject to their continued service to us.

The following table sets forth in summary form information concerning the compensation that we paid or awarded during the period beginning on the date of our inception and ending on June 30, 2014 to each of our non-employee directors:

Name <sup>(1)</sup>	Option Awards	All Other Compensation	Total
Peter Barton Hutt <sup>(2)</sup>	\$ 10,800	—	\$ 10,800
Marc Kozin <sup>(4)</sup>	—	—	—
Stuart Randle <sup>(4)</sup>	—	—	—
John Sculley <sup>(3)</sup>	—	—	—

(1) Dr. Westphal was an employee director during 2014 and his compensation is fully reflected in the "— Summary Compensation Table" above. Dr. Westphal did not receive any compensation in 2014 for services provided as a member of our board of directors.

(2) Peter Barton Hutt was granted a stock option covering 120,000 shares.

(3) Mr. Sculley joined our board of directors on August 25, 2014.

(4) Mr. Kozin and Mr. Randle joined our board of directors on October 10, 2014.

Effective upon the date of the underwriting agreement related to this offering, our board of directors adopted a new compensation policy that will be applicable to all of our non-employee directors. This compensation policy provides that each such non-employee director will receive the following compensation for service on our board of directors:

- an annual cash retainer of \$ \_\_\_\_\_ ;
- an additional annual cash retainer of \$ \_\_\_\_\_ for service as chairman of the board of directors;
- an additional annual cash retainer of \$ \_\_\_\_\_ for service as a member of the audit committee or \$ \_\_\_\_\_ for service as chair of the audit committee;
- an additional annual cash retainer of \$ \_\_\_\_\_ for service as a member of the compensation committee or \$ \_\_\_\_\_ for service as chair of the compensation committee;
- an additional annual cash retainer of \$ \_\_\_\_\_ for service as a member of the nominating and corporate governance committee or \$ \_\_\_\_\_ for service as chair of the nominating and corporate governance committee;
- upon first joining our board of directors, an automatic initial grant of an option to purchase \_\_\_\_\_ shares of our common stock vesting over three years following the grant date; and
- for each non-employee director whose term continues on the date of our annual meeting each year, an automatic annual grant of an option to purchase \_\_\_\_\_ shares of our common stock vesting over one year following the grant date.

The term of each option will be 10 years. The options will be granted under our 2014 plan, the terms of which are described in more detail above under "— Equity Benefit Plans — 2014 Equity Incentive Plan."

**CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS**

The following includes a summary of transactions since February 26, 2014, the date of our inception, to which we have been a party, in which the amount involved in the transaction exceeded \$120,000, and in which any of our directors, executive officers or, to our knowledge, beneficial owners of more than 5% of our capital stock or any member of the immediate family of any of the foregoing persons had or will have a direct or indirect material interest, other than equity and other compensation, termination, change in control and other arrangements, which are described under "Executive and Director Compensation."

**Convertible Preferred Stock Financings****Series A Preferred Stock Financing**

In March 2014, we entered into a Series A Preferred Stock Purchase Agreement, or the March Purchase Agreement, pursuant to which we issued and sold to investors an aggregate of 10,000,000 shares of our Series A convertible preferred stock at a purchase price of \$1.00 per share, for aggregate consideration of \$10.0 million. In April and May 2014, at additional closings pursuant to the March Purchase Agreement, we issued and sold to investors an aggregate of 5,775,221 additional shares of our series A convertible preferred stock at a purchase price of \$1.00 per share, for aggregate consideration of \$5.8 million.

**Series B Preferred Stock Financing**

In July 2014, we entered into a Series B Preferred Stock Purchase Agreement, or the July Purchase Agreement, pursuant to which we issued and sold to investors an aggregate of 8,892,506 shares of our series B convertible preferred stock at a purchase price of \$1.81 per share, for aggregate consideration of \$16.1 million. In August, September and October 2014, at additional closings pursuant to the July Purchase Agreement, we issued and sold to investors an aggregate of 5,186,141 additional shares of our series B convertible preferred stock at a purchase price of \$1.81 per share, for aggregate consideration of \$9.4 million.

All outstanding convertible preferred stock will be converted into common stock upon the closing of this offering.

The participants in the convertible preferred stock financings described above included the following directors, executive officers or holders of more than 5% of our capital stock or entities affiliated with them. The following table presents the number of shares issued to these related parties in these financings:

Participants <sup>(1)</sup>	Shares of Series A Preferred Stock	Series A Preferred Stock Purchase Price	Shares of Series B Preferred Stock	Series B Preferred Stock Purchase Price
<b>5% or greater stockholders</b>				
Longwood Fund II, L.P. <sup>(2)</sup>	8,000,000	\$ 8,000,000	2,212,756	\$ 3,999,999
Entities affiliated with Bessemer Venture Partners <sup>(3)</sup>	4,000,000	\$ 4,000,000	1,217,015	\$ 2,199,998
<b>Directors</b>				
Peter Barton Hutt	50,000	\$ 50,000	—	—
Sculley Gibbs I, LLC <sup>(4)</sup>	300,000	\$ 300,000	82,978	\$ 149,999

<sup>(1)</sup> Additional details regarding these stockholders and their equity holdings is provided in "Principal Stockholders."

<sup>(2)</sup> Christoph Westphal, M.D., Ph.D., our President, Chief Executive Officer and Chairman of the Board, is a Manager of Longwood Fund II, GP, LLC which is the general partner of Longwood Fund II, L.P.

<sup>(3)</sup> Represents shares held by Bessemer Venture Partners VIII Institutional L.P. and Bessemer Venture Partners VIII L.P. Stephen Kraus, one of our directors, is an employee of Bessemer Venture Partners.

<sup>(4)</sup> John Sculley, a member of our board of directors, is a member of Sculley Gibbs I, LLC.

## **Agreements with Our Stockholders**

In connection with our convertible preferred stock financings, we entered into amended and restated investor rights, voting and right of first refusal and co-sale agreements containing registration rights, information rights, voting rights and rights of first refusal, among other things, with certain holders of our convertible preferred stock and certain holders of our common stock, including our principal stockholders and their affiliates. All of the provisions of these agreements will terminate upon the closing of this offering, except for the registration rights granted under our amended and restated investor rights agreement in July 2014 between us and the investors listed therein, or the Investor Rights Agreement, as more fully described below in "Description of Capital Stock — Registration Rights."

## **Employment Arrangements**

We have entered into employment arrangements with our executive officers, as more fully described in "Executive and Director Compensation — Agreements with our Executive Officers," and "— Potential Payments Upon Termination or Change of Control."

## **Stock Options Granted to Executive Officers and Directors**

We have granted stock options to our executive officers and directors, as more fully described in "Executive and Director Compensation."

## **Founders Agreement**

On February 25, 2014, Bruce Bean, Roderick MacKinnon and Donald MacKinnon, or the Scientific Founders, and Christoph Westphal entered into a founders agreement, which was adopted by us on February 27, 2014. Under the founders agreement, we agreed to issue the Scientific Founders an aggregate of 3,900,000 shares of our common stock. The founders agreement also provides anti-dilution protection to the Scientific Founders and the Business Founders, as defined therein, in the event we increased the size of our employee incentive pool. In addition, the founders agreement required the Scientific Founders to transfer to us the existing intellectual property relating to our business, outlined the terms of the advisory services to be provided by the Scientific Founders, described the vesting terms for the shares to be issued to the founders and granted the founders a royalty relating to any future sales of our products. The parties' obligations under each of these provisions were subsequently implemented pursuant to a patent assignment agreement, technology assignment agreement, restricted stock purchase agreements and a royalty agreement among the parties. The founders agreement was amended on March 21, 2014 to terminate all of the parties' rights and obligations, other than the founders' anti-dilution protection and certain miscellaneous provisions. The founders agreement was terminated in its entirety on April 10, 2014. Christoph Westphal was issued shares of our common stock as described above in "Executive and Director Compensation — Equity-Based Incentive Awards."

## **Royalty Agreement**

In connection with the transfer of certain intellectual property to us by the Scientific Founders and by Christoph Westphal, or collectively the founders, on March 20, 2014, we entered into a royalty agreement with the founders. Pursuant to the royalty agreement we are obligated to pay the founders a royalty of 2%, in the aggregate of gross sales of any product sold by us or by any of our licensees for use in the treatment of any neuromuscular disorder, and that uses, incorporates or embodies, or is made using any of our intellectual property, including any know-how. The royalty agreement grants the founders certain audit rights and requires any license or sublicense granted by us be consistent with the terms and conditions of the royalty agreement. Each founder may assign his rights and obligations under the royalty agreement to a third-party upon prior written notice to us. We may not assign our rights and obligations thereunder except in the event of a change in control relating to our company. The term of the royalty agreement is perpetual.

## License Agreement

On May 1, 2014, we entered into a license agreement with ECLDS, LLC for the license of a portion of our office space that we sublease at 800 Boylston Street, 24th Floor, Boston, Massachusetts. ECLDS, LLC is owned by Christoph Westphal, M.D., Ph.D., our President, Chief Executive Officer and Chairman. The license agreement provides that ECLDS, LLC will license 2,647 square feet of office space from us for \$7,721 per month. Under the license agreement, ECLDS, LLC pays us the same price per square foot that we pay our sublessor for the space. The initial term of the license is from May 1, 2014 to August 30, 2017 and may be terminated by either party with 90 days written notice. In September 2014, we amended the license agreement to reduce the amount of space ECLDS, LLC licenses from us to 2,362 square feet and reduce the amount ECLDS, LLC pays to us to \$6,890 per month.

## Indemnification Agreements

We have or will enter into, and intend to continue to enter into, separate indemnification agreements with our directors and executive officers, in addition to the indemnification provided for in our amended and restated bylaws. These agreements, among other things, require us to indemnify our directors and executive officers for certain expenses, including attorneys' fees, judgments, fines and settlement amounts incurred by a director or executive officer in any action or proceeding arising out of their services as one of our directors or executive officers or any other company or enterprise to which the person provides services at our request. We believe that these bylaw provisions and indemnification agreements are necessary to attract and retain qualified persons as directors and officers.

The limitation of liability and indemnification provisions in our amended and restated certificate of incorporation and amended and restated bylaws may discourage stockholders from bringing a lawsuit against directors for breach of their fiduciary duties. They may also reduce the likelihood of derivative litigation against directors and officers, even though an action, if successful, might benefit us and our stockholders. A stockholder's investment may be harmed to the extent we pay the costs of settlement and damage awards against directors and officers pursuant to these indemnification provisions.

## Policies and Procedures for Transactions with Related Persons

We have adopted a written related-person transactions policy that sets forth our policies and procedures regarding the identification, review, consideration and oversight of "related-person transactions." For purposes of our policy only, a "related-person transaction" is a transaction, arrangement or relationship (or any series of similar transactions, arrangements or relationships) in which we and any "related person" are participants involving an amount that exceeds \$120,000.

Transactions involving compensation for services provided to us as an employee, consultant or director are not considered related-person transactions under this policy. A related person is any executive officer, director or a holder of more than 5% of our common stock, including any of their immediate family members and any entity owned or controlled by such persons.

Under the policy, where a transaction has been identified as a related-person transaction, management must present information regarding the proposed related-person transaction to our audit committee (or, where review by our audit committee would be inappropriate, to another independent body of our board of directors) for review. The presentation must include a description of, among other things, the material facts, the direct and indirect interests of the related persons, the benefits of the transaction to us and whether any alternative transactions are available. To identify related-person transactions in advance, we rely on information supplied by our executive officers, directors and certain significant stockholders. In considering related-person transactions, our audit committee or other independent body of our board of directors takes into account the relevant available facts and circumstances including, but not limited to:

- the risks, costs and benefits to us;

- the impact on a director's independence in the event the related person is a director, immediate family member of a director or an entity with which a director is affiliated;
- the terms of the transaction;
- the availability of other sources for comparable services or products; and
- the terms available to or from, as the case may be, unrelated third-parties or to or from our employees generally.

In the event a director has an interest in the proposed transaction, the director must recuse himself or herself from the deliberations and approval.

**PRINCIPAL STOCKHOLDERS**

The following table sets forth information regarding beneficial ownership of our common stock as of September 30, 2014 by:

- each person, or group of affiliated persons, known by us to beneficially own more than 5% of our common stock;
- each of our directors;
- each of our executive officers; and
- all of our current executive officers and directors as a group.

The percentage ownership information under the column entitled "Before offering" is based on \_\_\_\_\_ shares of common stock outstanding as of September 30, 2014, assuming conversion of all outstanding shares of our convertible preferred stock into \_\_\_\_\_ shares of common stock upon the closing of this offering. The percentage ownership information under the column entitled "After offering" is based on the sale of \_\_\_\_\_ shares of common stock to be outstanding after this offering and gives effect to the (i) conversion of all outstanding shares of our convertible preferred stock into \_\_\_\_\_ shares of common stock upon the closing of this offering and (ii) the issuance by us of \_\_\_\_\_ shares of common stock in this offering.

Information with respect to beneficial ownership has been furnished by each director, officer or beneficial owner of more than 5% of our common stock. We have determined beneficial ownership in accordance with the rules of the SEC. These rules generally attribute beneficial ownership of securities to persons who possess sole or shared voting power or investment power with respect to those securities. The table below assumes that the underwriters do not exercise their option to purchase additional shares from us. In addition, the rules include shares of common stock issuable pursuant to the exercise of stock options or warrants that are either immediately exercisable or exercisable on or before November 29, 2014, which is 60 days after September 30, 2014. These shares are deemed to be outstanding and beneficially owned by the person holding those options or warrants for the purpose of computing the percentage ownership of that person, but they are not treated as outstanding for the purpose of computing the percentage ownership of any other person. Unless otherwise indicated, the persons or entities identified in this table have sole voting and investment power with respect to all shares shown as beneficially owned by them, subject to applicable community property laws.

Except as otherwise noted below, the address for each person or entity listed in the table is c/o Flex Pharma, Inc., 800 Boylston Street, 24th Floor, Boston, MA 02199. The table below does not reflect any shares of our common stock that our directors, executive officers, 5% stockholders or their affiliated entities may purchase in this offering, including any of the reserved shares, as described in the "Underwriting" section of this prospectus.

Name of beneficial owner	Number of shares beneficially owned	Percentage of shares beneficially owned	
		Before offering	After offering
<b>5% or greater stockholders</b>			
Longwood Fund II, L.P. <sup>(1)</sup>			
Entities affiliated with Bessemer Venture Partners <sup>(2)</sup>			
<b>Directors and executive officers</b>			
Peter Barton Hutt <sup>(3)</sup>			
Marc Kozin			
Stephen Kraus <sup>(4)</sup>			
Stuart Randle			
John Sculley <sup>(5)</sup>			
Christoph Westphal, M.D., Ph.D. <sup>(6)</sup>			
John McCabe			
Robert Hadfield			
All directors and executive officers as a group			

\* Represents beneficial ownership of less than one percent.

- (1) Represents shares of common stock issuable upon conversion of convertible preferred stock held by Longwood Fund II, L.P. Longwood Fund II GP, LLC (the "General Partner") is the general partner of Longwood Fund II, L.P. and exercises voting and investment power with respect to securities owned directly by Longwood Fund II, L.P. Richard Aldrich, Michelle Dipp, M.D., Ph.D. and Christoph Westphal, M.D., Ph.D. are the managers of the General Partner and share voting and dispositive power with respect to the securities held by Longwood Fund II, L.P. each of whom disclaims beneficial ownership of the shares held by Longwood Fund II, L.P. except to the extent of his or her pecuniary interest therein. The address for Longwood Fund II, L.P. is 800 Boylston Street, Suite 1555, Boston, MA 02199.
- (2) Includes (a) 2,368,525 shares of common stock issuable upon conversion of convertible preferred stock held by Bessemer Venture Partners VIII L.P. and (b) 2,848,490 shares of common stock issuable upon conversion of convertible preferred stock held by Bessemer Venture Partners VIII Institutional L.P. (together with Bessemer Venture Partners VIII L.P., the "Bessemer Venture Partner Entities"). Deer VIII & Co. L.P. ("Deer L.P.") is the general partner of the Bessemer Venture Partner Entities. Deer VIII & Co. Ltd. is the general partner of Deer L.P. J. Edmund Colloton, David J. Cowan, Robert P. Goodman, Jeremy S. Levine and Robert M. Stavis are the directors of Deer VIII & Co. Ltd. and share voting and dispositive power over the shares of stock held by the Bessemer Venture Partner Entities. Each of Mr. Colloton, Mr. Cowan, Mr. Goodman, Mr. Levine and Mr. Stavis disclaims beneficial ownership of the shares identified in this footnote except as to his or her respective proportionate pecuniary interest in such shares. The address for entities affiliated with Bessemer Venture Partners is 1865 Palmer Avenue, Suite 104, Larchmont, NY 10538.
- (3) Represents 50,000 shares of common stock issuable upon conversion of convertible preferred stock held by Peter Barton Hutt.
- (4) Stephen Kraus serves as an employee of Bessemer Venture Partners, the management company affiliate of the Bessemer Venture Partner Entities that hold 5,217,015 shares of convertible preferred stock. Mr. Kraus has no voting or dispositive power with respect to the shares held by the Bessemer Venture Partner Entities and disclaims beneficial ownership of such shares except to the extent of his pecuniary interest therein.
- (5) Represents 382,978 shares of common stock issuable upon conversion of convertible preferred stock held by Sculley Gibbs I, LLC. Mr. Sculley is a member of Sculley Gibbs, LLC.
- (6) Includes 16,714,286 shares of common stock held by Christoph Westphal, M.D., Ph.D. This number does not include 10,212,756 shares of convertible preferred stock held by Longwood Fund II, L.P. The ultimate general partner of Longwood Fund II, L.P. is Longwood Fund II GP, LLC. Voting and investment power with respect to the shares held by Longwood Fund, LP are vested in Richard Aldrich, Michelle Dipp, M.D., Ph.D. and Christoph Westphal, M.D., Ph.D., the managers of Longwood Fund II GP, LLC each of whom disclaims beneficial ownership of the shares held by Longwood Fund L.P. except to the extent of any pecuniary interest therein.



## DESCRIPTION OF CAPITAL STOCK

Upon the closing of this offering and the filing of our amended and restated certificate of incorporation, our authorized capital stock will consist of \_\_\_\_\_ shares of common stock, par value \$0.0001 per share and \_\_\_\_\_ shares of preferred stock, par value \$0.0001 per share. All of our authorized preferred stock upon the closing of this offering will be undesignated. The following is a summary of the rights of our common and preferred stock and some of the provisions of our amended and restated certificate of incorporation and amended and restated bylaws, which will become effective upon the closing of this offering and of the Delaware General Corporation Law. This summary is not complete. For more detailed information, please see our amended and restated certificate of incorporation and amended and restated bylaws, which are filed as exhibits to the registration statement of which this prospectus is a part, as well as the relevant provisions of the Delaware General Corporation Law.

### **Common Stock**

#### ***Outstanding Shares***

On September 30, 2014, there were \_\_\_\_\_ shares of common stock outstanding, held of record by \_\_\_\_\_ stockholders. This amount excludes our outstanding shares of convertible preferred stock, which will convert into \_\_\_\_\_ shares of common stock upon the closing of this offering. Based on the number of shares of common stock outstanding as of September 30, 2014, and assuming (1) the conversion of all outstanding shares of our convertible preferred stock and (2) the issuance by us of \_\_\_\_\_ shares of common stock in this offering, there will be \_\_\_\_\_ shares of common stock outstanding upon the closing of this offering.

As of September 30, 2014, there were \_\_\_\_\_ shares of common stock subject to outstanding options under our equity incentive plans.

#### ***Voting***

Holders of our common stock are entitled to one vote for each share held of record on all matters submitted to a vote of the stockholders, including the election of directors, and do not have cumulative voting rights. Accordingly, the holders of a majority of the shares of our common stock entitled to vote in any election of directors can elect all of the directors standing for election.

#### ***Dividends***

Subject to preferences that may be applicable to any then outstanding preferred stock, the holders of common stock are entitled to receive dividends, if any, as may be declared from time to time by our board of directors out of legally available funds.

#### ***Liquidation***

In the event of our liquidation, dissolution or winding up, holders of our common stock will be entitled to share ratably in the net assets legally available for distribution to stockholders after the payment of all of our debts and other liabilities, subject to the satisfaction of any liquidation preference granted to the holders of any outstanding shares of preferred stock.

#### ***Rights and Preferences***

Holders of our common stock have no preemptive, conversion or subscription rights, and there are no redemption or sinking fund provisions applicable to our common stock. The rights, preferences and privileges of the holders of our common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of our preferred stock that we may designate and issue in the future.

#### ***Fully Paid and Nonassessable***

All of our outstanding shares of common stock are, and the shares of common stock to be issued in this offering will be, fully paid and nonassessable.

## **Preferred Stock**

On September 30, 2014, there were \_\_\_\_\_ shares of convertible preferred stock outstanding, held of record by \_\_\_\_\_ stockholders after giving effect to the issuance of series B convertible preferred stock in October 2014. Upon the closing of this offering, all outstanding shares of convertible preferred stock will have been converted into \_\_\_\_\_ shares of our common stock. Upon the closing of this offering, our certificate of incorporation will be amended and restated to delete all references to such shares of convertible preferred stock. Under the amended and restated certificate of incorporation, our board of directors will have the authority, without further action by the stockholders, to issue up to \_\_\_\_\_ shares of preferred stock in one or more series, to establish from time to time the number of shares to be included in each such series, to fix the rights, preferences and privileges of the shares of each wholly unissued series and any qualifications, limitations or restrictions thereon and to increase or decrease the number of shares of any such series, but not below the number of shares of such series then outstanding.

Our board of directors may authorize the issuance of preferred stock with voting or conversion rights that could adversely affect the voting power or other rights of the holders of the common stock. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions and other corporate purposes, could, among other things, have the effect of delaying, deferring or preventing a change in our control that may otherwise benefit holders of our common stock and may adversely affect the market price of the common stock and the voting and other rights of the holders of common stock. We have no current plans to issue any shares of preferred stock.

## **Registration Rights**

Following the closing of this offering, substantially all the existing holders of our common stock, or their transferees, will be entitled to the registration rights set forth below with respect to registration of the resale of such shares under the Securities Act pursuant to an amended and restated investor rights agreement by and among us and certain of our stockholders.

### ***Demand Registration Rights***

At any time beginning 180 days following the effective date of this registration statement, the holders of at least 20% of the registrable securities, as defined in the amended and restated investor rights agreement, have the right to make up to two demands that we file a registration statement under the Securities Act covering registrable securities of such holders with an anticipated aggregate offering price of securities of at least \$10.0 million, subject to specified exceptions.

### ***Form S-3 Registration Rights***

If we are eligible to file a registration statement on Form S-3, holders of registrable securities have the right to demand that we file a registration statement on Form S-3 so long as the aggregate amount of securities to be sold under the registration statement on Form S-3 is at least \$3.0 million, subject to specified exceptions, conditions and limitations.

### ***"Piggyback" Registration Rights***

If we register any securities for public sale, holders of registration rights will have the right to include their shares in the registration statement. The underwriters of any underwritten offering will have the right to limit the number of shares having registration rights to be included in the registration statement, but not below 30% of the total number of shares requested by the holders to be included in the registration statement.

### ***Expenses of Registration***

Generally, we are required to bear all registration and selling expenses incurred in connection with the demand, piggyback and Form S-3 registrations described above, other than underwriting discounts and commissions.

## **Expiration of Registration Rights**

The demand, piggyback and Form S-3 registration rights discussed above will terminate five years following the closing of this offering, after the consummation of a liquidation event or, as to a given holder of registrable securities, when such holder is able to sell all of their registrable securities in a single 90-day period under Rule 144 of the Securities Act, or Rule 144.

## **Anti-Takeover Effects of Provisions of Our Amended and Restated Certificate of Incorporation, Our Bylaws and Delaware Law**

### ***Delaware Anti-Takeover Law***

We are subject to Section 203 of the Delaware General Corporation Law, or Section 203. Section 203 generally prohibits a public Delaware corporation from engaging in a "business combination" with an "interested stockholder" for a period of three years following the time that such stockholder became an interested stockholder, unless:

- prior to such time the board of directors of the corporation approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;
- upon consummation of the transaction which resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the voting stock outstanding (but not the outstanding voting stock owned by the interested stockholder) those shares owned (i) by persons who are directors and also officers and (ii) employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or
- at or subsequent to such time the business combination is approved by the board of directors and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least 66<sup>2</sup>/<sub>3</sub>% of the outstanding voting stock which is not owned by the interested stockholder.

Section 203 defines a business combination to include:

- any merger or consolidation involving the corporation and the interested stockholder;
- any sale, transfer, pledge or other disposition involving the interested stockholder of 10% or more of the assets of the corporation;
- subject to exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;
- subject to exceptions, any transaction involving the corporation that has the effect of increasing the proportionate share of the stock of any class or series of the corporation beneficially owned by the interested stockholder; and
- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits provided by or through the corporation.

In general, Section 203 defines an interested stockholder as any entity or person beneficially owning 15% or more of the outstanding voting stock of the corporation and any entity or person affiliated with or controlling or controlled by the entity or person.

### **Amended and Restated Certificate of Incorporation and Amended and Restated Bylaws**

Provisions of our amended and restated certificate of incorporation and amended and restated bylaws, which will become effective upon the closing 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 common stock. Among other things, our amended and restated certificate of incorporation and amended and restated bylaws:

- permit our board of directors to issue up to \_\_\_\_\_ shares of preferred stock, with any rights, preferences and privileges as they may designate (including the right to approve an acquisition or other change in our control);
- provide that the authorized number of directors may be changed only by resolution of the board of directors;
- 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;
- divide our board of directors into three classes;
- require that any action to be taken by our stockholders must be effected at a duly called annual or special meeting of stockholders and not be taken by written consent;
- provide that stockholders seeking to present proposals before a meeting of stockholders or to nominate candidates for election as directors at a meeting of stockholders must provide notice in writing in a timely manner and also specify requirements as to the form and content of a stockholder's notice;
- do not provide for cumulative voting rights (therefore allowing the holders of a majority of the shares of common stock entitled to vote in any election of directors to elect all of the directors standing for election, if they should so choose); and
- provide that special meetings of our stockholders may be called only by the chairman of the board, our Chief Executive Officer or by the board of directors pursuant to a resolution adopted by a majority of the total number of authorized directors.

The amendment of any of these provisions, with the exception of the ability of our board of directors to issue shares of preferred stock and designate any rights, preferences and privileges thereto, would require approval by the holders of at least 66<sup>2</sup>/<sub>3</sub>% of our then outstanding common stock.

#### **The Listing**

We intend to apply for listing of our common stock on \_\_\_\_\_ under the symbol "FLPH."

#### **Transfer Agent and Registrar**

The transfer agent and registrar for our common stock is \_\_\_\_\_. The transfer agent and registrar's address is \_\_\_\_\_.

## SHARES ELIGIBLE FOR FUTURE SALE

Immediately prior to this offering, there has been no public market for our common stock. Future sales of substantial amounts of common stock in the public market could adversely affect prevailing market prices. Furthermore, since only a limited number of shares will be available for sale shortly after this offering because of contractual and legal restrictions on resale described below, sales of substantial amounts of common stock in the public market after the restrictions lapse could adversely affect the prevailing market price for our common stock as well as our ability to raise equity capital in the future.

Based on the number of shares of common stock outstanding as of September 30, 2014, upon the closing of this offering, \_\_\_\_\_ shares of common stock will be outstanding, assuming no exercise of the underwriters' option to purchase additional shares from us and no exercise of options. All of the shares sold in this offering will be freely tradable unless held by an affiliate of ours. Except as set forth below, the remaining \_\_\_\_\_ shares of common stock outstanding after this offering will be restricted as a result of securities laws or lock-up agreements. These remaining shares will be eligible for sale under Rule 144 or Rule 701 of the Securities Act upon expiration of lock-up agreements at least 180 days after the date of this offering.

### Rule 144

In general, under Rule 144 as currently in effect, beginning 90 days after the effective date of the registration statement of which this prospectus is a part, any person who is not an affiliate of ours and has held their shares for at least six months, including the holding period of any prior owner other than one of our affiliates, may sell shares without restriction, provided current public information about us is available. In addition, under Rule 144, any person who is not an affiliate of ours and has held their shares for at least one year, including the holding period of any prior owner other than one of our affiliates, would be entitled to sell an unlimited number of shares immediately upon the closing of this offering without regard to whether current public information about us is available. Beginning 90 days after the effective date of the registration statement of which this prospectus is a part, a person who is an affiliate of ours and who has beneficially owned restricted securities for at least six months, including the holding period of any prior owner other than one of our affiliates, is entitled to sell a number of restricted shares within any three-month period that does not exceed the greater of:

- 1% of the number of shares of our common stock then outstanding, which will equal approximately \_\_\_\_\_ shares immediately after this offering; or
- the average weekly trading volume of our common stock on \_\_\_\_\_ during the four calendar weeks preceding the filing of a notice on Form 144 pursuant to Rule 144 with respect to the sale.

Sales of restricted shares under Rule 144 held by our affiliates are also subject to requirements regarding the manner of sale, notice and the availability of current public information about us. Rule 144 also provides that affiliates relying on Rule 144 to sell shares of our common stock that are not restricted shares must nonetheless comply with the same restrictions applicable to restricted shares, other than the holding period requirement.

Notwithstanding the availability of Rule 144, the holders of substantially all of our restricted shares have entered into lock-up agreements as described below and their restricted shares will become eligible for sale at the expiration of the restrictions set forth in those agreements.

## Rule 701

Under Rule 701 of the Securities Act, or Rule 701, shares of our common stock acquired upon the exercise of currently outstanding options or pursuant to other rights granted under our stock plans may be resold by:

- persons other than affiliates, beginning 90 days after the effective date of the registration statement of which this prospectus is a part, subject only to the manner-of-sale provisions of Rule 144; and
- our affiliates, beginning 90 days after the effective date of the registration statement of which this prospectus is a part, subject to the manner-of-sale and volume limitations, current public information and filing requirements of Rule 144, in each case, without compliance with the six-month holding period requirement of Rule 144.

As of September 30, 2014, options to purchase a total of \_\_\_\_\_ shares of common stock were outstanding, of which \_\_\_\_\_ were vested. Of the total number of shares of our common stock issuable under these options, substantially all are subject to contractual lock-up agreements with us or the underwriters described below under "Underwriting" and will become eligible for sale at the expiration of those agreements unless held by an affiliate of ours.

## Lock-Up Agreements

We, along with our directors, executive officers and all or substantially all of our other stockholders and optionholders, have agreed that for a period of 180 days after the date of this prospectus, subject to specified exceptions, we or they will not offer, sell, contract to sell, pledge or otherwise dispose of, directly or indirectly, any shares of our common stock or securities convertible into or exchangeable or exercisable for any shares of our common stock. Upon expiration of the "lock-up" period, certain of our stockholders will have the right to require us to register their shares under the Securities Act. See "Registration Rights" below.

## Registration Rights

Upon the closing of this offering, the holders of \_\_\_\_\_ shares of our common stock will be entitled to rights with respect to the registration of their shares under the Securities Act, subject to the lock-up arrangement described above. Registration of these shares under the Securities Act would result in the shares becoming freely tradable without restriction under the Securities Act, except for shares purchased by affiliates, immediately upon the effectiveness of the registration. Any sales of securities by these stockholders could have a material adverse effect on the trading price of our common stock. See "Description of Capital Stock — Registration Rights."

## Equity Incentive Plans

We intend to file with the SEC a registration statement on Form S-8 under the Securities Act covering the shares of common stock reserved for issuance under the 2014 pre-IPO plan and 2014 plan. The registration statement is expected to be filed and become effective as soon as practicable after the closing of this offering. Accordingly, shares registered under the registration statement will be available for sale in the open market following its effective date, subject to Rule 144 volume limitations and the lock-up agreements described above, if applicable.

## MATERIAL U.S. FEDERAL INCOME TAX CONSIDERATIONS FOR NON-U.S. HOLDERS

The following is a general discussion of the material U.S. federal income tax consequences of the acquisition, ownership and disposition of our common stock by "Non-U.S. Holders" (as defined below). This discussion does not consider all aspects of U.S. federal income taxation that may be relevant to particular Non-U.S. Holders in light of their individual circumstances or to certain types of Non-U.S. Holders subject to special U.S. tax rules, including partnerships or other pass-through entities for U.S. federal income tax purposes, banks, financial institutions or other financial services entities, broker-dealers, insurance companies, tax-exempt organizations, controlled foreign corporations, passive foreign investment companies, corporations that accumulate earnings to avoid U.S. federal income tax, persons who use or are required to use mark-to-market accounting, persons that hold our shares as part of a "straddle," a "hedge" or a "conversion transaction," certain former citizens or permanent residents of the United States, investors in pass-through entities, or persons subject to the alternative minimum tax. In addition, this summary does not address, except to the extent discussed below, the effects of any applicable gift or estate tax, and this summary does not address the potential application of the Medicare contribution tax or any tax considerations that may apply to Non-U.S. Holders of our common stock under state, local or non-U.S. tax laws and any other U.S. federal tax laws.

This summary is based on the Internal Revenue Code of 1986, as amended, or the Code, and applicable Treasury Regulations, rulings, administrative pronouncements and decisions as of the date of this prospectus, all of which are subject to change or differing interpretations at any time with possible retroactive effect. We have not sought, and will not seek, any ruling from the Internal Revenue Service, or the IRS, with respect to the tax consequences discussed herein, and there can be no assurance that the IRS will not take a position contrary to the tax consequences discussed below or that any position taken by the IRS would not be sustained. This discussion assumes that a Non-U.S. Holder will hold our common stock as a capital asset within the meaning of the Code (generally, property held for investment). For purposes of this discussion, the term "Non-U.S. Holder" means a beneficial owner of shares of our common stock that is not a partnership (or entity or arrangement treated as a partnership for U.S. federal income tax purposes) and is not:

- an individual who is a citizen or resident of the United States;
- a corporation (or other entity taxable as a corporation for U.S. federal income tax purposes) created or organized in the United States or under the laws of the United States or of 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 if (1) a U.S. court can exercise primary supervision over the trust's administration and one or more U.S. persons have the authority to control all of the trust's substantial decisions or (2) the trust has a valid election in effect under applicable U.S. Treasury Regulations to be treated as a U.S. person.

If a partnership (or entity or arrangement treated as a partnership for U.S. federal income tax purposes) is a beneficial owner of our common stock, the tax treatment of a partner in the partnership will generally depend upon the status of the partner and the activities of the partnership. If you are a partner of a partnership holding our shares, you should consult your tax advisor regarding the tax consequences of the purchase, ownership, and disposition of our common stock.

**PROSPECTIVE INVESTORS SHOULD CONSULT THEIR TAX ADVISORS REGARDING THE PARTICULAR U.S. FEDERAL INCOME TAX CONSEQUENCES TO THEM OF ACQUIRING, OWNING AND DISPOSING OF OUR COMMON STOCK, AS WELL AS ANY TAX CONSEQUENCES ARISING UNDER ANY STATE, LOCAL OR FOREIGN TAX LAWS AND ANY OTHER U.S. FEDERAL TAX LAWS.**

## **Distributions on Our Common Stock**

Subject to the discussion below regarding foreign accounts, in general, distributions, if any, paid to a Non-U.S. Holder (to the extent paid out of our current or accumulated earnings and profits, as determined under U.S. federal income tax principles) will constitute dividends and be subject to U.S. withholding tax at a rate equal to 30% of the gross amount of the dividend, or a lower rate prescribed by an applicable income tax treaty, unless the dividends are effectively connected with a trade or business carried on by the Non-U.S. Holder within the United States. Any distribution not constituting a dividend (because such distribution exceeds our current and accumulated earnings and profits) will be treated first as reducing the Non-U.S. Holder's basis in its shares of common stock, but not below zero, and to the extent it exceeds the Non-U.S. Holder's basis, as capital gain (see "Gain on Sale, Exchange or Other Disposition of Our Common Stock" below).

A Non-U.S. Holder who claims the benefit of an applicable income tax treaty generally will be required to satisfy certain certification and other requirements prior to the distribution date. Such Non-U.S. Holders must generally provide the withholding agent with a properly executed IRS Form W-8BEN or W-8BEN-E claiming an exemption from or reduction in withholding under an applicable income tax treaty. If tax is withheld in an amount in excess of the amount applicable under an income tax treaty, a refund of the excess amount may generally be obtained 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 an applicable income tax treaty.

Dividends that are effectively connected with a Non-U.S. Holder's conduct of a U.S. trade or business (and, if required by an applicable income tax treaty, attributable to a U.S. permanent establishment or fixed base of the Non-U.S. Holder) generally will not be subject to U.S. withholding tax if the Non-U.S. Holder provides the required forms, including IRS Form W-8ECI to the withholding agent, but instead generally will be subject to U.S. federal income tax on a net income basis at the regular graduated rates in the same manner as if the Non-U.S. Holder were a resident of the United States. A corporate Non-U.S. Holder that receives effectively connected dividends may be subject to an additional branch profits tax at a rate of 30%, or a lower rate prescribed by an applicable income tax treaty.

## **Gain on Sale, Exchange or Other Disposition of Our Common Stock**

Subject to the discussion below regarding foreign accounts, in general, a Non-U.S. Holder will not be subject to any U.S. federal income tax or withholding tax on any gain realized upon such holder's sale, exchange or other disposition of shares of our common stock unless:

- the gain is effectively connected with a trade or business carried on by the Non-U.S. Holder within the United States (and, if required by an applicable income tax treaty, attributable to a U.S. permanent establishment or fixed base of the Non-U.S. Holder);
- the Non-U.S. Holder is an individual who is present in the United States for 183 days or more in the taxable year of disposition and certain other conditions are met; or
- we are or have been a "United States real property holding corporation" for U.S. federal income tax purposes at any time during the shorter of the five-year period ending on the date of disposition or the period that the Non-U.S. Holder held the common stock, and, if shares of our common stock are regularly traded on an established securities market, the Non-U.S. Holder owns, or is treated as owning, more than five percent of our common stock at any time during the foregoing period.

Net gain realized by a Non-U.S. Holder described in clause (1) above generally will be subject to U.S. federal income tax in the same manner as if the Non-U.S. Holder were a resident of the United States. Any gains of a corporate Non-U.S. Holder described in clause (1) above may also be subject to an additional "branch profits tax" at a 30% rate, or such lower rate as may be specified by an applicable income tax treaty.



Gain realized by an individual Non-U.S. Holder described in clause (2) above will be subject to a flat 30% tax, which gain may be offset by certain U.S. source capital losses, even though the individual is not considered a resident of the United States.

For purposes of clause (3) above, a corporation generally is a United States real property holding corporation if the fair market value of its United States real property interests equals or exceeds 50% of the sum of the fair market value of its worldwide real property interests plus its other assets used or held for use in a trade or business. We believe that we are not, and we do not anticipate that we will become, a United States real property holding corporation. Because the determination of whether we are a United States real property holding corporation depends on the fair market value of our United States real property interests relative to the fair market value of our other business assets and our non-U.S. real property interests, however, there can be no assurance we are not a United States real property holding corporation or will not become one in the future.

### **U.S. Federal Estate Tax**

The estate of an individual Non-U.S. Holder is generally subject to U.S. federal estate tax on property having a U.S. situs. Because we are a U.S. corporation, our common stock will be U.S. situs property and therefore will be included in the taxable estate of an individual Non-U.S. Holder, unless an applicable estate tax treaty between the United States and the decedent's country of residence provides otherwise.

### **Information Reporting and Backup Withholding**

Generally, we must report annually to the IRS and to each Non-U.S. Holder the amount of dividends paid, the name and address of the recipient, and the amount, if any, of tax withheld. These information reporting requirements apply even if withholding was not required because the dividends were effectively connected with the Non-U.S. Holder's conduct of a trade or business within the United States or withholding was reduced by an applicable income tax treaty. Under applicable income tax treaties or other agreements, the IRS may make its reports available to the tax authorities in the Non-U.S. Holder's country of residence.

Dividends paid to a Non-U.S. Holder generally will be subject to backup withholding, currently at a rate of 28%, unless the Non-U.S. Holder certifies to the payor as to its foreign status, which certification may generally be made on IRS Form W-8BEN or other appropriate version of IRS Form W-8.

Proceeds from the sale or other disposition of common stock by a Non-U.S. Holder effected by or through a U.S. office of a broker will generally be subject to information reporting and backup withholding, currently at a rate of 28%, unless the Non-U.S. Holder certifies to the withholding agent under penalties of perjury as to, among other things, its name, address and status as a Non-U.S. Holder or otherwise establishes an exemption. Payment of disposition proceeds effected outside the United States by or through a non-U.S. office of a non-U.S. broker generally will not be subject to information reporting or backup withholding if the payment is not received in the United States. Information reporting, but generally not backup withholding, will apply to such a payment if the broker has certain connections with the United States unless the broker has documentary evidence in its records that the beneficial owner thereof is a Non-U.S. Holder and specified conditions are met or an exemption is otherwise established.

Backup withholding is not an additional tax. Any amount withheld under the backup withholding rules from a payment to a Non-U.S. Holder that results in an overpayment of taxes generally will be refunded, or credited against the holder's U.S. federal income tax liability, if any, provided that the required information is timely furnished to the IRS.

### **Foreign Accounts**

A U.S. federal withholding tax of 30% will apply to dividends and the gross proceeds of a disposition of our common stock paid to a "foreign financial institution" (as specially defined under applicable rules) unless

such institution enters into an agreement with the U.S. government to withhold on certain payments and to collect and provide to the U.S. tax authorities substantial information regarding certain U.S. account holders of such institution (which includes certain equity holders of such institution, as well as certain account holders that are foreign entities with U.S. owners) otherwise establishes an exemption. This U.S. federal withholding tax of 30% will also apply to payments of dividends and the gross proceeds of a disposition of our common stock paid to a non-financial foreign entity unless such entity either certifies it does not have any substantial U.S. owners, provides the withholding agent with a certification identifying substantial direct and indirect U.S. owners of the entity or otherwise establishes an exemption. The U.S. has entered into, and may in the future enter into, agreements with certain countries that modify these general rules for entities located in those countries. Prospective investors are encouraged to consult with their own tax advisors regarding the possible implications of this withholding tax on their investment in our common stock.

The withholding provisions described above currently generally apply to payments of dividends and will generally apply to payments of gross proceeds from a sale or other disposition of common stock on or after January 1, 2017.

## UNDERWRITING

Subject to the terms and conditions set forth in the underwriting agreement, dated \_\_\_\_\_, \_\_\_\_\_, among us and Jefferies LLC and Piper Jaffray & Co., 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:

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<b>Underwriter</b>	<b>Number of Shares</b>
Jefferies LLC	
Piper Jaffray & Co.	
JMP Securities LLC	
Cantor Fitzgerald & Co.	
Roth Capital Partners LLC	
Total	

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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 completion 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. In addition, the underwriters have advised us that they do not intend to confirm sales to any account over which they exercise discretionary authority.

### 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.

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	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	\$	\$	\$	\$

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We estimate expenses payable by us in connection with this offering, other than the underwriting discounts and commissions referred to above, will be approximately \$ . We have also agreed to reimburse the underwriters for certain expenses, including an amount equal to \$ in connection with the clearance of this offering with the Financial Industry Regulatory Authority, 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 intend to apply to have our common stock on under the trading symbol "FLPH."

### Stamp Taxes

If you purchase shares of common stock offered in this prospectus, you may be required to pay stamp taxes and other charges under the laws and practices of the country of purchase, in addition to the offering price listed on the cover page of this prospectus.

### 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 or substantially all 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-1(h) under the Securities Exchange Act of 1934, as amended, or
- 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 Piper Jaffray & Co.

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 Piper Jaffray & Co. may, in their sole 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 shareholders 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 Securities Exchange Act of 1934, as amended, 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 underwriters' 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.

The underwriters may also engage in passive market making transactions in our common stock on in accordance with Rule 103 of Regulation M during a period before the commencement of offers or sales of shares of our common stock in this offering and extending through the completion of distribution. A passive market maker must display its bid at a price not in excess of the highest independent bid of that security. However, if all independent bids are lowered below the passive market maker's bid, that bid must then be lowered when specified purchase limits are exceeded.

### **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' web sites and any information contained in any other web site 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.

### **Directed Share Program**

At our request, the underwriters have reserved for sale at the initial public offering price up to shares of common stock for employees, directors and other persons associated with us who have expressed an interest in purchasing shares in the offering. The number of shares of common stock available for sale to the general public in the offering will be reduced to the extent these persons purchase the directed shares in the program. Any directed shares not so purchased will be offered by the underwriters to the general public on the same terms as the other shares. Except for certain participants who have entered into lock-up agreements as contemplated above, each person buying shares through the directed share program has agreed that, for a period of 180 days from and including the date of this prospectus, he or she will not, without the prior written consent of the representatives, dispose of or hedge any shares of common stock or any securities convertible into or exchangeable for shares of common stock with respect to shares purchased in the program. For those participants who have entered into lock-up agreements as contemplated above, the lock-up agreements contemplated therein shall govern with respect to their purchases of shares of common stock in the program. The representatives in their sole discretion may release any of the securities subject to these lock-up agreements at any time. We have agreed to indemnify the underwriters against certain liabilities and expenses, including liabilities under the Securities Act, in connection with sales of the directed shares.

### **Other Activities and Relationships**

The underwriters and certain of their respective 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 underwriters and certain of their respective 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 underwriters and certain of their respective 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**

This prospectus does not constitute an offer to sell to, or a solicitation of an offer to buy from, anyone in any country or jurisdiction (i) in which such an offer or solicitation is not authorized, (ii) in which any person making such offer or solicitation is not qualified to do so or (iii) in which any such offer or solicitation would otherwise be unlawful. No action has been taken that would, or is intended to, permit a public offer of the common shares or possession or distribution of this prospectus or any other offering or publicity material relating to the common shares in any country or jurisdiction (other than the United States) where any such action for that purpose is required. Accordingly, each underwriter has undertaken that it will not, directly or indirectly, offer or sell any common shares or have in its possession, distribute or publish any prospectus, form of application, advertisement or other document or information in any country or jurisdiction except under circumstances that will, to the best of its knowledge and belief, result in compliance with any applicable laws and regulations and all offers and sales of the common shares by it will be made on the same terms.

### **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 common shares which are the subject of the offering contemplated by this prospectus supplement and the accompanying prospectus may not be made in that Relevant Member State except that an offer to the public in that Relevant Member State of any common shares 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 shares 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 an "offer common shares to the public" in relation to the common shares 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 shares to be offered so as to enable an investor to decide to purchase or subscribe to the common shares, 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.

### **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 (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.

### **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 the Company 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 the 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.

### **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 ("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 ("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 notes may not be circulated or distributed, nor may the notes 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 (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 notes are 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 notes 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 common shares 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 document has been prepared without regard to the disclosure standards for issuance prospectuses under art. 652a of the CO 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 relating to the common shares or this offering may be publicly distributed or otherwise made publicly available in Switzerland.

Neither this document nor any other offering or marketing material relating to this offering, the Company or the common shares has been or will be filed with or approved by any Swiss regulatory authority.

## LEGAL MATTERS

The validity of the shares of common stock being offered by this prospectus will be passed upon for us by Cooley LLP, Boston, Massachusetts. The underwriters are being represented by Latham & Watkins LLP.

## EXPERTS

The financial statements of Flex Pharma, Inc. at June 30, 2014, and for the period from February 26, 2014 (Inception) to June 30, 2014, appearing in this Prospectus and Registration Statement have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their report thereon appearing elsewhere herein, and are included in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

## WHERE YOU CAN FIND ADDITIONAL 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 being offered by this prospectus. This prospectus does not contain all of the information in the registration statement and its exhibits. For further information with respect to us and the common stock offered by this prospectus, we refer you to the registration statement and its exhibits. Statements contained in this prospectus as to the contents of any contract or any other document referred to are not necessarily complete, and in each instance, we refer you to the copy of the contract or other document filed as an exhibit to the registration statement. Each of these statements is qualified in all respects by this reference.

You can read our SEC filings, including the registration statement, over the Internet at the SEC's website at [www.sec.gov](http://www.sec.gov). You may also read and copy any document we file with the SEC at its public reference facilities at 100 F Street NE, Washington, D.C. 20549. You may also obtain copies of these documents at prescribed rates by writing to the Public Reference Section of the SEC at 100 F Street NE, Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the operation of the public reference facilities. You may also request a copy of these filings, at no cost, by writing us at 800 Boylston Street, 24<sup>th</sup> Floor, Boston, MA 02199 or telephoning us at (617) 874-1821.

Upon the closing of this offering, we will be subject to the information reporting requirements of the Exchange Act, and we will file reports, proxy statements and other information with the SEC. These reports, proxy statements and other information will be available for inspection and copying at the public reference room and website of the SEC referred to above. We also maintain a website at [www.flex-pharma.com](http://www.flex-pharma.com), at which, following the closing of this offering, 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 incorporated by reference in, and is not part of, this prospectus.

**Flex Pharma, Inc.**

**Index to Financial Statements**

**As of June 30, 2014 and for the period from February 26, 2014 (Inception) to June 30, 2014**

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**Report of Independent Registered Public Accounting Firm**

The Board of Directors and Stockholders of  
Flex Pharma, Inc.

We have audited the accompanying balance sheet of Flex Pharma, Inc. (the "Company") as of June 30, 2014, and the related statements of operations and comprehensive loss, convertible preferred stock and stockholders' (deficit) equity and cash flows for the period from February 26, 2014 (Inception) to June 30, 2014. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. We were not engaged to perform an audit of the Company's internal control over financial reporting. Our audit included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Flex Pharma, Inc. at June 30, 2014, and the results of its operations and its cash flows for the period from February 26, 2014 (Inception) to June 30, 2014, in conformity with U.S. generally accepted accounting principles.

/s/ Ernst & Young LLP

Boston, Massachusetts  
October 29, 2014

**FLEX PHARMA, INC.**  
**BALANCE SHEETS**

	<u>June 30, 2014</u>	<u>Pro Forma June 30, 2014 (unaudited)</u>
<b>Assets</b>		
Current assets:		
Cash	\$ 14,287,264	\$ 39,685,078
Prepaid expenses and other current assets	69,223	69,223
Total current assets	<u>14,356,487</u>	<u>39,754,301</u>
Property and equipment, net	32,433	32,433
Restricted cash	126,595	126,595
Total assets	<u>\$ 14,515,515</u>	<u>\$ 39,913,329</u>
<b>Liabilities, convertible preferred stock and stockholders' (deficit) equity</b>		
Current liabilities:		
Accounts payable	\$ 399,888	\$ 399,888
Accrued expenses and other current liabilities	<u>374,332</u>	<u>374,332</u>
Total current liabilities	774,220	774,220
Deferred rent	48,190	48,190
Other long term liabilities	<u>15,442</u>	<u>15,442</u>
Total liabilities	837,852	837,852
Commitments and contingencies (Note 6)		
Convertible preferred stock:		
Series A convertible preferred stock, \$0.0001 par value; 16,000,000 shares authorized and 15,775,221 shares issued and outstanding at June 30, 2014; no shares issued and outstanding pro forma (unaudited) (aggregate liquidation preference of \$15,775,221 at June 30, 2014)	15,637,032	—
Series B convertible preferred stock, \$0.0001 par value; no shares authorized, issued and outstanding at June 30, 2014; 14,500,000 shares authorized pro forma (unaudited); no shares issued and outstanding pro forma (unaudited)	—	—
Stockholders' (deficit) equity:		
Common stock, \$0.0001 par value; 45,000,000 shares authorized, 23,214,285 shares issued and 7,254,440 shares outstanding at June 30, 2014; 61,000,000 shares authorized, 53,068,153 shares issued and 37,108,308 shares outstanding pro forma (unaudited)	725	3,711
Additional paid-in capital	322,280	41,354,140
Accumulated deficit	<u>(2,282,374)</u>	<u>(2,282,374)</u>
Total stockholders' (deficit) equity	<u>(1,959,369)</u>	<u>39,075,477</u>
Total liabilities, convertible preferred stock and stockholders' (deficit) equity	<u>\$ 14,515,515</u>	<u>\$ 39,913,329</u>

See accompanying notes to financial statements.

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**FLEX PHARMA, INC.**  
**STATEMENT OF OPERATIONS AND COMPREHENSIVE LOSS**

	Period from February 26, 2014 (Inception) to June 30, 2014
Operating expenses:	
Research and development	\$ 1,129,667
General and administrative	1,155,365
Total operating expenses	<u>2,285,032</u>
Loss from operations	(2,285,032)
Interest income	2,658
Net loss	<u>\$ (2,282,374)</u>
Comprehensive loss	<u>\$ (2,282,374)</u>
Net loss attributable to common stockholders	<u>\$ (2,282,374)</u>
Net loss per share attributable to common stockholders — basic and diluted	<u>\$ (0.36)</u>
Weighted-average number of common shares used in net loss per share attributable to common stockholders — basic and diluted	<u>6,395,527</u>
Pro forma net loss per share attributable to common stockholders — basic and diluted (unaudited)	<u>\$ (0.12)</u>
Weighted-average number of common shares used in pro forma net loss per share attributable to common stockholders — basic and diluted (unaudited)	<u>18,329,592</u>

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See accompanying notes to financial statements.

**FLEX PHARMA, INC.**  
**STATEMENT OF CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' (DEFICIT) EQUITY**

	Series A Convertible Preferred Stock		Series B Convertible Preferred Stock		Common Stock		Additional Paid-In Capital	Accumulated Deficit	Total Stockholders' (Deficit) Equity
	Shares	Amount	Shares	Amount	Shares	Amount			
<b>Balance at February 26, 2014 (Inception)</b>	—	\$ —	—	\$ —	—	\$ —	\$ —	\$ —	\$ —
Issuance of Series A convertible preferred stock, net of issuance costs of \$138,189	15,775,221	15,637,032	—	—	—	—	—	—	—
Sale of restricted common stock to founders	—	—	—	—	—	—	2,321	—	2,321
Vesting of restricted common stock	—	—	—	—	7,254,440	725	(725)	—	—
Stock-based compensation expense	—	—	—	—	—	—	320,684	—	320,684
Net loss	—	—	—	—	—	—	—	(2,282,374)	(2,282,374)
<b>Balance at June 30, 2014</b>	<u>15,775,221</u>	<u>\$ 15,637,032</u>	<u>—</u>	<u>\$ —</u>	<u>7,254,440</u>	<u>\$ 725</u>	<u>\$ 322,280</u>	<u>\$ (2,282,374)</u>	<u>\$ (1,959,369)</u>
Conversion of convertible preferred stock into common stock (unaudited)	(15,775,221)	(15,637,032)	—	—	29,853,868	2,986	41,031,860	—	41,034,846
<b>Pro forma balance at June 30, 2014 (unaudited)</b>	<u>—</u>	<u>\$ —</u>	<u>—</u>	<u>\$ —</u>	<u>37,108,308</u>	<u>\$ 3,711</u>	<u>\$ 41,354,140</u>	<u>\$ (2,282,374)</u>	<u>\$ 39,075,477</u>

See accompanying notes to financial statements



**FLEX PHARMA, INC.**  
**STATEMENT OF CASH FLOWS**

	Period from February 26, 2014 (Inception) to June 30, 2014
<b>Operating activities</b>	
Net loss	\$ (2,282,374)
Adjustments to reconcile net loss to net cash used in operating activities:	
Depreciation and amortization	1,981
Stock-based compensation	320,684
Other non-cash items	55,221
Changes in operating assets and liabilities:	
Restricted cash	(126,595)
Prepaid expenses and other current assets	(69,223)
Accounts payable	399,888
Accrued expenses	374,332
Deferred rent	48,190
Other long term liabilities	15,442
Net cash used in operating activities	<u>(1,262,454)</u>
<b>Investing activities</b>	
Purchases of property and equipment	(34,414)
Net cash used in investing activities	<u>(34,414)</u>
<b>Financing activities</b>	
Proceeds from issuance of Series A convertible preferred stock, net of issuance costs	15,581,811
Proceeds from sale of restricted common stock to founders	2,321
Net cash provided by financing activities	<u>15,584,132</u>
Net increase in cash	14,287,264
Cash at beginning of period	—
Cash at end of period	<u>\$ 14,287,264</u>
<b>Supplemental cash flow information</b>	
Issuance of Series A convertible preferred stock in satisfaction of accounts payable	<u>\$ 55,221</u>

See accompanying notes to financial statements.

**FLEX PHARMA, INC.**

**NOTES TO FINANCIAL STATEMENTS**

**1. Organization and operations**

***The Company***

Flex Pharma, Inc. (the "Company") is a biopharmaceutical company that was incorporated in Delaware on February 26, 2014 and has a principal place of business in Boston, Massachusetts. The Company is developing innovative and proprietary treatments for nocturnal leg cramps and and spasms associated with severe neuromuscular conditions. The Company believes that activation of certain receptors in primary sensory neurons reduces the repetitive firing, or hyperexcitability, of alpha-motor neurons, thereby preventing or reducing the frequency and intensity of muscle cramps and spasms. The Company also believes that it is the only company developing products based on this mechanism of muscle cramp and spasm inhibition.

The Company is subject to risks common to companies in the biotechnology industry, including, but not limited to, risks of failure of pre-clinical studies, clinical studies and clinical trials, the need to obtain marketing approval for its drug product candidates, the need to successfully commercialize and gain market acceptance of its drug product candidates and its consumer products, dependence on key personnel, protection of proprietary technology, compliance with government regulations, development by competitors of technological innovations and ability to transition from pilot-scale manufacturing to large-scale production of products.

***Liquidity***

The Company has incurred an accumulated deficit of \$2,282,374 since February 26, 2014 (inception) through June 30, 2014, and will require substantial additional capital to fund its research and development and the launch of its consumer brand. The Company believes that its unrestricted cash of \$14,287,264 at June 30, 2014, in addition to funds raised subsequent to June 30, 2014, will be sufficient to allow the Company to fund its current operating plan for at least the next 12 months. Management expects the Company to incur a loss for the full year ending December 31, 2014 and for the foreseeable future. The Company's ability to achieve profitability in the future is dependent upon the successful development, approval and commercialization of its drug product candidates and successful commercialization of its consumer products, and achieving a level of revenues adequate to support the Company's cost structure. The Company may never achieve profitability, and unless and until it does, the Company will continue to need to raise additional capital. Management intends to fund future operations through additional private or public debt or equity offerings, and may seek additional capital through arrangements with collaborators or from other sources. There can be no assurances, however, that additional funding will be available on terms acceptable to the Company, or at all.

***Unaudited pro forma presentation***

The unaudited pro forma balance sheet information as of June 30, 2014 reflects (1) the issuance of 14,078,647 shares of Series B convertible preferred stock ("Series B Preferred Stock") from July 2014 through October 2014 and the proceeds therefrom and (2) the conversion of 29,853,868 shares of Series A and Series B convertible preferred stock into 29,853,868 shares of common stock immediately prior to the closing of the initial public offering ("IPO").

Unaudited pro forma net loss per share attributable to common stockholders is computed using the weighted-average number of common shares outstanding after giving effect to the conversion of all shares of outstanding Series A convertible preferred stock ("Series A Preferred Stock") into shares of common stock as if such conversion had occurred at the beginning of the period presented, or the date of original issuance, if later. For the period from February 26, 2014 (inception) to June 30, 2014, during which the Company incurred a net loss, there is no income allocation required under the two-class method or dilution

**FLEX PHARMA, INC.**

**NOTES TO FINANCIAL STATEMENTS (Continued)**

**1. Organization and operations (Continued)**

attributed to pro forma weighted-average shares outstanding in the calculation of pro forma diluted loss per share attributable to common stockholders.

**2. Summary of significant accounting policies**

***Basis of presentation and use of estimates***

The accompanying financial statements have been prepared in conformity with accounting principles generally accepted in the United States of America ("GAAP"). Any reference in these notes to applicable guidance is meant to refer to the authoritative United States generally accepted accounting principles as found in the Accounting Standards Codification ("ASC") and Accounting Standards Update ("ASU") of the Financial Accounting Standards Board ("FASB"). The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. On an ongoing basis, the Company's management evaluates its estimates, which include, but are not limited to, estimates related to clinical study accruals, stock-based compensation expense, and amounts of expenses during the reported period. The Company bases its estimates on historical experience and other market-specific or other relevant assumptions that it believes to be reasonable under the circumstances. Actual results may differ from those estimates or assumptions.

The Company utilizes significant estimates and assumptions in determining the fair value of its common stock. The Company utilized various valuation methodologies in accordance with the framework of the 2004 and 2013 American Institute of Certified Public Accountants Technical Practice Aids, *Valuation of Privately-Held Company Equity Securities Issued as Compensation*, to estimate the fair value of its common stock. Each valuation methodology includes estimates and assumptions that require the Company's judgment. These estimates and assumptions include a number of objective and subjective factors, including external market conditions affecting the biotechnology industry sector, the prices at which the Company sold shares of preferred stock, the superior rights and preferences of securities senior to the Company's common stock at the time and the likelihood of achieving a liquidity event, such as an initial public offering or a sale of the Company. Significant changes to the key assumptions used in the valuations could result in different fair values of common stock at each valuation date and materially affect the financial statements.

***Segment information***

Operating segments are defined as components of an enterprise about which separate discrete information is available for evaluation by the chief operating decision maker, or decision-making group, in deciding how to allocate resources and assess performance. The Company and the Company's chief operating decision maker, the Company's Chief Executive Officer, view the Company's operations and manage its business as one operating segment, which is the business of developing and commercializing products for nocturnal leg cramps, spasms associated with severe neuromuscular conditions and exercise associated muscle cramps. The Company operates in only one geographic segment, the United States.

***Concentrations of credit risk and off-balance sheet risk***

Cash is a financial instrument that potentially subjects the Company to a concentration of credit risk. The Company's cash is held in accounts at a financial institution that management believes is creditworthy. The Company has not experienced any credit losses in such accounts and does not believe it is exposed to any significant credit risk on these funds. The Company has no financial instruments with off-balance sheet risk of loss.

## FLEX PHARMA, INC.

## NOTES TO FINANCIAL STATEMENTS (Continued)

## 2. Summary of significant accounting policies (Continued)

**Deferred IPO issuance costs**

Deferred issuance costs, which primarily consist of direct incremental legal and accounting fees relating to the IPO, are capitalized. The deferred issuance costs will be offset against IPO proceeds upon the consummation of the offering. In the event the offering is terminated, or delayed more than 90 days, deferred offering costs will be expensed. No amounts were incurred or capitalized as of June 30, 2014.

**Property and equipment**

Property and equipment is stated at cost, less accumulated depreciation. Maintenance and repairs that do not improve or extend the lives of the respective assets are expensed to operations as incurred, while costs of major additions and betterments are capitalized. Upon disposal, the related cost and accumulated depreciation is removed from the accounts and any resulting gain or loss is included in the results of operations. Depreciation is recorded using the straight-line method over the estimated useful lives of the respective assets, which are as follows:

<u>Asset type</u>	<u>Estimated useful life</u>
Computers and computer equipment	3 years
Laboratory equipment	3 years

**Impairment of long-lived assets**

The Company evaluates long-lived assets for potential impairment when events or changes in circumstances indicate the carrying value of the assets may not be recoverable. Recoverability is measured by comparing the book values of the assets to the expected future net undiscounted cash flows that the assets are expected to generate. If such assets are considered to be impaired, the impairment to be recognized is measured by the amount by which the book value of the assets exceed their fair value. The Company has not recognized any impairment losses through June 30, 2014.

**Research and development expenses**

Research and development costs are charged to expense as incurred in performing research and development activities. The costs include employee compensation costs, clinical study costs, consultant costs, regulatory costs and facilities and overhead costs. The Company records payments made to outside vendors in advance of services performed or goods being delivered for use in research and development activities as prepaid expenses, which are expensed as services are performed or goods are delivered.

**Stock-based compensation expense**

The Company accounts for its stock-based compensation awards to employees and directors in accordance with FASB ASC Topic 718, *Compensation-Stock Compensation* ("ASC 718"). ASC 718 requires all stock-based payments to employees, including grants of employee stock options, to be recognized in the statement of operations and comprehensive loss based on their grant date fair values. Compensation expense related to awards to employees is recognized on a straight-line basis based on the grant date fair value over the associated service period of the award, which is generally the vesting term. The Company accounts for stock-based compensation arrangements with non-employees based upon the fair value of the consideration received or the equity instruments issued, whichever is more reliably measurable, in accordance with the provisions of FASB ASC Topic 505-50, *Equity-Based Payments to Non-Employees*. The measurement date for non-employee awards is generally the date performance of services required from the non-employee is complete, resulting in periodic adjustments to stock-based compensation expense during the vesting period for changes in the fair value of the awards. Stock-based compensation costs for

**FLEX PHARMA, INC.**

**NOTES TO FINANCIAL STATEMENTS (Continued)**

**2. Summary of significant accounting policies (Continued)**

non-employee service awards are recognized as services are provided, which is generally the vesting period, on a straight-line basis. The unvested portion of the awards is subject to re-measurement over the vesting period.

The Company estimates the fair value of its stock options using the Black-Scholes option pricing model, which requires the input of subjective assumptions, including (a) the expected stock price volatility, (b) the expected term of the award, (c) the risk-free interest rate, (d) expected dividends and (e) the estimated fair value of the Company's common stock on the measurement date. Due to the lack of a public market for the trading of its common stock and a lack of company specific historical and implied volatility data, the Company has based its estimate of expected volatility on the historical volatility of a group of similar companies that are publicly traded. When selecting these public companies on which it has based its expected stock price volatility, the Company selected companies with comparable characteristics, including enterprise value, risk profiles, position within the industry, and with historical share price information sufficient to meet the expected term of the stock-based awards. The Company computes historical volatility data using the volatility for the selected companies' shares during the equivalent period of the calculated expected term of the stock-based awards. The Company will continue to apply this process until a sufficient amount of historical information regarding the volatility of its own stock price becomes available. Due to the lack of Company specific historical option activity, the Company has estimated the expected term of its employee stock options using the "simplified" method, whereby, the expected term equals the arithmetic average of the vesting term and the original contractual term of the option. The expected term for non-employee awards is the remaining contractual term of the option. The risk-free interest rates are based on the U.S. Treasury securities with a maturity date commensurate with the expected term of the associated award. The Company has never paid, and does not expect to pay dividends in the foreseeable future.

The Company is also required to estimate forfeitures at the time of grant and revise those estimates in subsequent periods if actual forfeitures differ from its estimates. The Company records stock-based compensation expense only for those awards that are expected to vest. To the extent that actual forfeitures differ from the Company's estimates, the differences are recorded as a cumulative adjustment in the period the estimates were revised.

***Income taxes***

Income taxes are recorded in accordance with FASB ASC Topic 740, *Income Taxes* ("ASC 740"), which provides for deferred taxes using an asset and liability approach. Under this method, deferred tax assets and liabilities are determined based on the difference between the financial reporting and the tax reporting basis 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 provides a valuation allowance against net deferred tax assets unless, based upon the available evidence, it is more likely than not that the deferred tax assets will be realized. The Company has evaluated available evidence and concluded that the Company may not realize the benefit of its deferred tax assets; therefore a valuation allowance has been established for the full amount of the deferred tax assets.

The Company accounts for uncertain tax positions in accordance with the provisions of ASC 740. When uncertain tax positions exist, the Company recognizes the tax benefit of tax positions to the extent that the benefit will more likely than not be realized. The determination as to whether the tax benefit will more likely than not be realized is based upon the technical merits of the tax position as well as consideration of the available facts and circumstances. As of June 30, 2014, the Company does not have any significant

**FLEX PHARMA, INC.**

**NOTES TO FINANCIAL STATEMENTS (Continued)**

**2. Summary of significant accounting policies (Continued)**

uncertain tax positions. The Company's practice is to recognize interest and/or penalties related to income tax matters in income tax expense.

***Net loss per share attributable to common stockholders***

Basic net loss per share is computed by dividing the net loss attributable to common stockholders by the weighted-average number of common shares outstanding for the period. Diluted net loss per share is computed by dividing the net loss attributable to common stockholders by the weighted-average number of common shares and dilutive common stock equivalents outstanding for the period, determined using the treasury stock method and the if-converted method, for convertible securities, if inclusion of these is dilutive.

For the period from February 26, 2014 (inception) to June 30, 2014, the Company has excluded the effects of all potentially dilutive shares, which include Series A Preferred Stock and outstanding common stock options, from the weighted-average number of common shares outstanding as their inclusion in the computation for the period would be anti-dilutive due to the net loss per share incurred by the Company.

***Comprehensive loss***

Comprehensive loss consists of net income or loss and changes in equity during a period from transactions and other events and circumstances generated from non-owner sources. The Company's net loss equals comprehensive loss for the period presented.

***Recent accounting pronouncements***

In June 2014, the FASB issued ASU No. 2014-10 "*Development Stage Entities (Topic 915): Elimination of Certain Financial Reporting Requirements, Including an Amendment to Variable Interest Entities Guidance in Topic 810, Consolidation*". Under this ASU, the definition of a development stage entity was removed from the ASC, thereby removing the financial reporting distinction between development stage entities and other reporting entities under GAAP. This standard is effective for annual reporting periods beginning after December 15, 2014. Early adoption is permitted for certain entities. The Company was eligible for early adoption and adopted this standard in the accompanying financial statements.

The Company believes that the impact of other recently issued standards that are not yet effective will not have a material effect on its financial position or results of operations upon adoption.

***Subsequent events***

The Company considers events or transactions that occur after the balance sheet date but prior to the issuance of the financial statements for potential recognition or disclosure in the financial statements. Subsequent events have been evaluated through the date these financial statements were issued for potential recognition or disclosure in the financial statements (Note 12).

**3. Restricted cash**

As of June 30, 2014, the Company had \$126,595 restricted cash of in the form of a letter of credit. The Company maintains this letter of credit as a security deposit on the lease of its office space in Boston, Massachusetts (Note 6).

## FLEX PHARMA, INC.

## NOTES TO FINANCIAL STATEMENTS (Continued)

## 4. Property and equipment, net

Property and equipment, net consists of the following:

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	<u>June 30, 2014</u>
Computers and computer equipment	\$ 27,258
Laboratory equipment	7,156
Total property and equipment	<u>34,414</u>
Accumulated depreciation	<u>(1,981)</u>
Property and equipment, net	<u>\$ 32,433</u>

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Depreciation expense was \$1,981 for the period from February 26, 2014 (inception) to June 30, 2014.

## 5. Accrued expenses and other current liabilities

Accrued expenses and other current liabilities consist of the following:

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	<u>June 30, 2014</u>
Payroll and employee-related costs	\$ 210,975
Accrued professional fees	78,164
Research and development costs	73,854
Other	11,339
Total	<u>\$ 374,332</u>

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## 6. Commitments and contingencies

*Lease commitments*

On April 29, 2014, the Company leased office space under an operating lease that is scheduled to expire in August 31, 2017. As of June 30, 2014, the minimum future lease payments under this operating lease are as follows:

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2014 (remaining)	\$ 105,496
2015	253,190
2016	253,190
2017	168,793
Total minimum lease payments	<u>\$ 780,669</u>

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The operating lease includes a free rent period, and rent expense is being recognized on a straight-line basis through the lease term. The Company recorded approximately \$58,000 of rent expense for the period from February 26, 2014 (inception) to June 30, 2014.

**FLEX PHARMA, INC.**

**NOTES TO FINANCIAL STATEMENTS (Continued)**

**6. Commitments and contingencies (Continued)**

***Related party***

The Company licenses a portion of its office space to an entity controlled by the Company's Chief Executive Officer. Under the terms of the license, the entity is charged the same rental rate as that is charged to the Company. Either party can terminate the agreement with 90 days notice and the license expires in August 2017.

***Royalty agreement***

In March 2014, the Company entered into a royalty agreement with certain of its founders. Under the agreement, the Company agreed to pay the founders an aggregate royalty of 2% of gross sales of the Company's products in perpetuity.

***Litigation***

The Company is not a party to any litigation and does not have contingency reserves established for any litigation liabilities as of June 30, 2014.

**7. Convertible preferred stock**

As of June 30, 2014, the Company had authorized 16,000,000 shares of Series A Preferred Stock, \$0.0001 par value per share, for issuance. During March, April and May 2014, the Company issued an aggregate of 15,775,221 shares of Series A Preferred Stock for \$1.00 per share, resulting in net proceeds to the Company of \$15,637,032, which is also the carrying value of the Series A Preferred Stock as of June 30, 2014. The Series A Preferred Stock contains the following rights and privileges:

***Voting***

The holders of the Series A Preferred Stock are entitled to vote, together with the holders of common stock, on all matters submitted to stockholders for a vote, except with respect to matters on which Delaware General Corporation Law requires that a vote will be by a separate class. Each Series A Preferred Stock holder is entitled to the number of votes equal to the number of shares of common stock into which each preferred share is convertible at the time of such vote. The holders of the outstanding Series A Preferred Stock, voting together as a single class, are entitled to elect one director to the Company's Board of Directors. Certain actions undertaken by the Company require approval from at least 75% of the holders of the outstanding Series A Preferred Stock. These actions include a liquidation, dissolution or winding up of the Company, amendments to the certificate of incorporation, issuance of certain classes of stock, issuance of debt and other certain other potential corporate actions.

***Dividends***

Prior to the payment of any dividend, except for a common stock dividend payable to the holders of common stock, the holders of Series A Preferred Stock are entitled to receive dividends in an amount that is at least equal to the amount that would have been received by the holders of the Series A Preferred Stock had all the Series A Preferred Stock been converted to common stock. As of June 30, 2014, no dividends have been declared.

***Liquidation preference***

In the event of any liquidation, dissolution, winding up of the affairs or deemed liquidation event of the Company, the holders of the then-outstanding Series A Preferred Stock are entitled to receive, in preference to the common stock holders, an amount equal to the greater of (1) \$1.00 per share of Series A Preferred Stock, plus all declared but unpaid dividends, or (2) such amount per share of Series A Preferred Stock payable as if converted into common stock. Any remaining assets of the Company shall be distributed ratably among the holders of common stock. If the assets or surplus funds to be distributed to the holders of the Series A Preferred Stock are insufficient to permit the payment to such holders of their full preferential amount, the assets and surplus funds legally available for distribution shall be distributed ratably among the holders of the Series A Preferred Stock, pro rata, based upon the number of shares held.



**FLEX PHARMA, INC.**

**NOTES TO FINANCIAL STATEMENTS (Continued)**

**7. Convertible preferred stock (Continued)**

In the event of certain deemed liquidation events, holders of the Series A Preferred Stock may require the Company to redeem their shares of Series A Preferred Stock at a price equal to the liquidation amount at that time. This term represents a contingent put feature at the discretion of the Series A Preferred Stock holders. As the Series A Preferred Stock may become redeemable upon an event outside the control of the Company, the Series A Preferred Stock has been classified outside of stockholders' deficit on the accompanying balance sheet.

**Conversion**

Each share of Series A Preferred Stock, at the option of the holder, is convertible into a number of fully paid shares of common stock as determined by dividing \$1.00 for Series A Preferred Stock, by the conversion price in effect at the time. The conversion price of Series A Preferred Stock is \$1.00 per share as of June 30, 2014. The conversion price is subject to adjustment in accordance with anti-dilution provisions contained in the Company's certificate of incorporation. Conversion is automatic immediately upon the closing of a firm commitment underwritten public offering in which shares are sold to the public at a price of at least \$2.00 per share (subject to appropriate adjustment for stock splits, stock dividends, combinations and other similar recapitalizations affecting the number of such shares issued and outstanding) for gross proceeds of at least \$40,000,000, or upon the written election of the holders of at least 75% of the then-outstanding shares of Series A Preferred Stock.

The Company has evaluated the Series A Preferred Stock and determined it should be considered an "equity host" and not a "debt host" as defined by ASC 815, *Derivatives and Hedging*. This evaluation is necessary in order to determine if any embedded features of the Series A Preferred Stock require bifurcation and, therefore, separate accounting as a derivative liability. The Company's analysis followed the "whole instrument approach," which compares an individual feature against the entire preferred stock instrument which includes that feature. The Company's analysis was based on a consideration of the Series A Preferred Stock's economic characteristics and risks, and more specifically evaluated all the stated and implied substantive terms and features, including (i) whether the Series A Preferred Stock included redemption or put features, (ii) whether the preferred stockholders were entitled to dividends, (iii) the voting rights of the Series A Preferred Stock and (iv) the existence and nature of any conversion rights. As a result of the Company's determination that the Series A Preferred Stock is an "equity host," the embedded conversion feature does not require bifurcation as a derivative liability. In addition, as the contingent put feature described above contains a gross settlement provision, this feature also does not require bifurcation as a derivative liability.

**8. Common stock**

As of June 30, 2014, the Company had authorized 45,000,000 shares of common stock, \$0.0001 par value per share. Each share of common stock is entitled to one vote. The holders of common stock are also entitled to receive dividends whenever funds are legally available and when declared by the Board of Directors, subject to the rights and privileges of the Series A Preferred Stock.

**Restricted common stock**

In March 2014, the Company sold 19,500,000 shares of restricted common stock to the founders of the Company ("recipients"), for \$0.0001 per share (equivalent to par value), for total proceeds of \$1,950. In April 2014, based upon anti-dilution provisions granted to the founders, an additional 3,714,285 shares of restricted common stock were sold to the same founders, after which the anti-dilution provisions were terminated. The restricted common stock vested 25% upon issuance, and the remaining 75% vests ratably

**FLEX PHARMA, INC.****NOTES TO FINANCIAL STATEMENTS (Continued)****8. Common stock (Continued)**

over four years, during which time the Company has the right to repurchase the unvested shares held by a recipient if the relationship between such recipient and the Company ceases. If the relationship terminates, the Company has 90 days to repurchase unvested shares at \$0.0001. Such shares are not accounted for as outstanding until they vest. There were 7,254,440 shares of common stock outstanding as of June 30, 2014.

The following is a summary of restricted common stock activity:

	Number of Shares	Weighted-Average Grant Date Fair Value
Non-vested at February 26, 2014	—	\$ —
Issued	23,214,285	0.02
Vested	(7,254,440)	0.02
Forfeited	—	—
Non-vested at June 30, 2014	<u>15,959,845</u>	<u>\$ 0.02</u>

The total fair value of shares vested for the period from February 26, 2014 (inception) to June 30, 2014 was approximately \$612,900.

**Shares reserved for future issuance**

The Company has reserved the following number of shares of common stock for future issuance:

	June 30, 2014
Vesting of restricted common stock	15,959,845
Conversion of Series A Preferred Stock	15,775,221
Stock-based compensation awards	2,500,000
Total	<u>34,235,066</u>

**9. Stock-based compensation**

In March 2014, the Company adopted the Flex Pharma, Inc. 2014 Equity Incentive Plan (the "Plan"), under which it may grant incentive stock options, non-qualified stock options, restricted stock awards, restricted stock units and stock appreciation rights to purchase up to 500,000 shares of common stock. In April 2014, the Company amended the Plan to issue up to 6,214,285 shares of common stock. Terms of stock award agreements, including vesting requirements, are determined by the board of directors, subject to the provisions of the Plan. For options granted from February 26, 2014 (inception) to June 30, 2014, the exercise price equaled the fair market value of the common stock as determined by the board of directors on the date of grant.

## FLEX PHARMA, INC.

## NOTES TO FINANCIAL STATEMENTS (Continued)

## 9. Stock-based compensation (Continued)

For the period from February 26, 2014 (inception) to June 30, 2014, the Company granted a total of 270,000 stock options, to non-employee consultants and members of its Scientific Advisory Board, which are included in the following table. The options generally vest over a four-year period, and have a contractual term of ten years. The total stock-based compensation expense related to all non-employee stock options for the period from February 26, 2014 (inception) to June 30, 2014 was approximately \$30,000. The following table summarizes stock option activity for employees and non-employees:

	Shares	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value
Granted	1,557,000	\$ 0.16		
Exercised	—	—		
Cancelled or forfeited	(281,875)	0.14		
Outstanding at June 30, 2014	1,275,125	\$ 0.16	9.48	\$ 901,641
Exercisable at June 30, 2014	58,792	\$ 0.14	1.98	\$ 42,918
Vested or expected to vest at June 30, 2014	1,073,110	\$ 0.16	9.41	\$ 759,438

During the period from February 26, 2014 (inception) to June 30, 2014, the Company granted stock options to purchase an aggregate of 1,557,000 shares of its common stock with a weighted-average grant date fair value of \$0.16. There were no stock options exercised in the period from February 26, 2014 (inception) to June 30, 2014.

The Company estimates the fair value of each stock option award on the grant date using the Black-Scholes option-pricing model based on the following assumptions and the assumptions regarding the fair value of the underlying Common Stock on each measurement date:

	Period from February 26, 2014 (Inception) to June 30, 2014
Expected volatility	76.4%
Risk-free interest rate	1.83% to 2.71%
Expected term	6 - 10 years
Expected dividend yield	0%

**FLEX PHARMA, INC.****NOTES TO FINANCIAL STATEMENTS (Continued)****9. Stock-based compensation (Continued)**

Total stock-based compensation expense recognized for employee and non-employee restricted common stock, and stock options granted to employees and non-employees is included in the Company's statement of operations and comprehensive loss as follows:

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	Period from February 26, 2014 (Inception) to June 30, 2014
Research and development	\$ 102,051
General and administrative	218,633
Total	<u>\$ 320,684</u>

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As of June 30, 2014, there was approximately \$4,396,000 of total unrecognized compensation cost related to non-vested equity awards. Total unrecognized compensation cost will be adjusted for the re-measurement of non-employee awards as well as future changes in employee and non-employee forfeitures, if any. The Company expects to recognize that cost over a remaining weighted-average period of 3.67 years.

**10. Income taxes**

For the period from February 26, 2014 (inception) to June 30, 2014, the Company did not record a current or deferred income tax expense or benefit. The Company's loss before income taxes consists solely of a domestic loss.

## FLEX PHARMA, INC.

## NOTES TO FINANCIAL STATEMENTS (Continued)

## 10. Income taxes (Continued)

Deferred taxes are recognized for temporary differences between the basis of assets and liabilities for financial statement and income tax purposes. The significant components of the Company's deferred tax assets are comprised of the following:

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	<u>June 30, 2014</u>
Deferred tax assets:	
U.S. and state net operating loss carryforwards	\$ 885,989
Accruals and other temporary differences	70,059
Amortization	34,303
Stock-based compensation	12,188
Tax credit carryforward	11,505
Total deferred tax assets	<u>1,014,044</u>
Less valuation allowance	<u>(822,522)</u>
Deferred tax assets	<u>191,522</u>
Deferred tax liabilities:	
Stock-based compensation	(191,483)
Depreciation	(39)
Deferred tax liabilities	<u>(191,522)</u>
Net deferred tax assets	<u>\$ —</u>

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The Company has evaluated the positive and negative evidence bearing upon the realizability of its deferred tax assets. Based on the Company's operating loss, the Company has concluded that it is more likely than not that the benefit of its deferred tax assets will not be realized. Accordingly, the Company has provided a full valuation allowance for deferred tax assets as of June 30, 2014. The valuation allowance increased approximately \$823,000 during the period from February 26, 2014 (inception) to June 30, 2014, due primarily to the generation of a net operating loss during the period.

**FLEX PHARMA, INC.****NOTES TO FINANCIAL STATEMENTS (Continued)****10. Income taxes (Continued)**

A reconciliation of income tax expense computed at the statutory federal income tax rate to income taxes as reflected in the financial statements is as follows:

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	Period from February 26, 2014 (Inception) to June 30, 2014
Federal income tax expense at statutory rate	34.0%
State income tax, net of federal benefit	4.2%
Permanent differences	(3.8)%
Change in valuation allowance	(35.3)%
Research credits	0.9%
Effective tax rate	<u>0.0%</u>

---

As of June 30, 2014, the Company had a U.S. federal net operating loss carryforward of approximately \$2,204,000, which may be available to offset future income tax liabilities and expires in 2034. As of June 30, 2014, the Company also had a U.S. state net operating loss carryforward of approximately \$176,000, which may be available to offset future income tax liabilities and expires in 2034.

Under the provisions of the Internal Revenue Code, the net operating loss and tax credit carryforwards are subject to review and possible adjustment by the Internal Revenue Service and state tax authorities. Net operating loss and tax credit carryforwards may become subject to an annual limitation in the event of certain cumulative changes in the ownership interest of significant shareholders over a three-year period in excess of 50 percent, as defined under Sections 382 and 383 of the Internal Revenue Code, respectively, as well as similar state provisions. This could limit the amount of tax attributes that can be utilized annually to offset future taxable income or tax liabilities. The amount of the annual limitation is determined based on the value of the Company immediately prior to the ownership change. Subsequent ownership changes may further affect the limitation in future years. The Company completed financings since its inception which may have resulted in a change in control as defined by Sections 382 and 383 of the Internal Revenue Code, or could result in a change in control in the future.

The Company will recognize interest and penalties related to uncertain tax positions in income tax expense. As of June 30, 2014, the Company had no accrued interest or penalties related to uncertain tax positions and no amounts have been recognized in the Company's statement of operations and comprehensive loss.

**11. Net loss per share**

Because the Company has reported a net loss for the period presented, diluted net loss per common share is the same as basic net loss per common share.

The following potentially dilutive securities outstanding, prior to the use of the treasury stock method or if-converted method, have been excluded from the computation of diluted weighted-average shares

**FLEX PHARMA, INC.****NOTES TO FINANCIAL STATEMENTS (Continued)****11. Net loss per share (Continued)**

outstanding, because such securities had an antidilutive impact due to the loss reported from the period from February 26, 2014 (inception) to June 30, 2014:

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	Period from February 26, 2014 (Inception) to June 30, 2014
Series A Preferred Stock	15,775,221
Options to purchase common stock	1,275,125
Unvested restricted common stock	15,959,845
Total	<u>33,010,191</u>

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**12. Subsequent events**

The Company has completed an evaluation of all subsequent events after the balance sheet date of June 30, 2014 through the date these financial statements were issued. The Company has concluded that no subsequent events have occurred that require disclosure, except as described below.

**(A) Issuance of Series B convertible preferred stock**

From July 2014 through October 2014, the Company issued 14,078,647 shares of Series B Preferred Stock, par value of \$0.0001, at \$1.81 per share, resulting in net proceeds to the Company of approximately \$25,398,000. In connection with the issuance of the Series B Preferred Stock, the Company and its board of directors increased the authorized shares of the Company to 91,500,000, including 61,000,000 shares of common stock, par value of \$0.0001, and 30,500,000 shares of preferred stock, par value of \$0.0001, with 14,500,000 shares designated as Series B Preferred Stock.

The rights and privileges of the Series A and Series B Preferred Stock are as follows:

***Voting***

The holders of the Series A Preferred Stock and Series B Preferred Stock are entitled to vote, together with the holders of common stock, on all matters submitted to stockholders for a vote, except with respect to matters on which Delaware General Corporation Law requires that a vote will be by a separate class. Each Series A and Series B Preferred Stock holder is entitled to the number of votes equal to the number of shares of common stock into which each preferred share is convertible at the time of such vote. The holders of the outstanding Series A and Series B Preferred Stock, voting together as a single class, are entitled to elect two directors to the Company's Board of Directors. Certain actions undertaken by the Company require approval from 75% of the holders of the outstanding Series A Preferred Stock and 60% of the Series B Preferred Stock. These actions include a liquidation, dissolution or winding up of the Company, certain amendments to the certificate of incorporation, altering the terms of the existing preferred stock and increasing the number of authorized shares of preferred stock.

***Dividends***

The Company shall not declare, pay or set aside any dividends unless the holders of each series of convertible preferred stock then outstanding shall receive first, or simultaneously, in the case of a dividend

**FLEX PHARMA, INC.**

**NOTES TO FINANCIAL STATEMENTS (Continued)**

**12. Subsequent events (Continued)**

on common stock, on a pari passu basis, a dividend in an amount that is at least equal to the amount that would have been received by the holders of the Series A and Series B Preferred Stock had all the Series A and Series B Preferred Stock been converted to common stock. In the event of a dividend on a class of stock that is not convertible to common stock, the holders shall receive a dividend in proportion to that received by the other classes of stock.

***Liquidation preference***

In the event of any liquidation, dissolution, winding up of the affairs or deemed liquidation event of the Company, the holders of the then-outstanding Series A and Series B Preferred Stock are entitled to receive, on a pari passu basis, in preference to the common stock holders, an amount equal to the greater of (1) \$1.00 per share of Series A Preferred Stock and \$1.81 per share of Series B Preferred Stock, plus all declared but unpaid dividends, or (2) such amount per share of Series A Preferred Stock and Series B Preferred Stock payable as if converted into common stock. Any remaining assets of the Company shall be distributed ratably among the holders of common stock. If the assets or surplus funds to be distributed to the holders of the Series A and Series B Preferred Stock are insufficient to permit the payment to such holders of their full preferential amount, the assets and surplus funds legally available for distribution shall be distributed ratably among the holders of the Series A and Series B Preferred Stock, pro rata, based upon the number of shares held.

In the event of certain deemed liquidation events, holders of the Series A and Series B Preferred Stock may require the Company to redeem their shares at a price equal to the liquidation amount at that time.

***Conversion***

Each share of Series A and Series B Preferred Stock, at the option of the holder, is convertible into a number of fully paid shares of common stock as determined by dividing \$1.00 for the Series A Preferred Stock and \$1.81 for the Series B Preferred Stock, by the conversion price in effect at the time. The conversion price of Series A Preferred Stock and Series B Preferred Stock is \$1.00 and \$1.81 per share, respectively. The conversion price is subject to adjustment in accordance with provisions contained in the Company's certificate of incorporation. Conversion is automatic immediately upon the closing of a firm commitment underwritten public offering in which shares are sold to the public at a price of at least \$2.00 per share (subject to appropriate adjustment for stock splits, stock dividends, combinations and other similar recapitalizations affecting the number of such shares issued and outstanding) for gross proceeds of at least \$40,000,000, or upon the written election of 1) the holders of at least 75% of the then-outstanding shares of Series A Preferred Stock and 2) the holders of at least 60% of the then-outstanding shares of Series B Preferred Stock.

**(B) Increase in shares available under equity incentive plan**

On September 17, 2014, the board of directors of the Company approved an increase in the shares available for award under the Flex Pharma, Inc. 2014 Equity Incentive Plan from 6,214,285 to 8,865,635.

On October 15, 2014, the Company granted 1,923,725 stock options to a combination of employees and non-employees. The stock options were granted at fair market value on the date of grant, vest over approximately four years and expire ten years from the date of grant.

**(C) Lease agreement for New York office space**

On October 21, 2014, the Company leased office space under an operating lease that commences on November 1, 2014 and is scheduled to expire on October 31, 2016. The minimum future lease payments are \$13,000, \$79,000 and \$70,000 for the remainder of 2014, 2015 and 2016, respectively.



Through and including \_\_\_\_\_, 2014 (the 25<sup>th</sup> day after the date of this prospectus), all dealers effecting transactions in these securities, whether or not participating in this offering, may be required to deliver a prospectus. This is in addition to the dealers' obligation to deliver a prospectus when acting as underwriters and with respect to their unsold allotments or subscriptions.

**Shares**

**FLEXPharma**

**Flex Pharma, Inc.**

**Common Stock**

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**PRELIMINARY PROSPECTUS**

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**Jefferies  
Piper Jaffray**

**JMP Securities**

**Cantor Fitzgerald & Co.  
Roth Capital Partners**

, 2014

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**PART II****INFORMATION NOT REQUIRED IN PROSPECTUS****Item 13. Other Expenses of Issuance and Distribution.**

The following table sets forth all costs and expenses, other than underwriting discounts and commissions, payable by Flex Pharma, Inc. (the "Registrant") in connection with the sale of the common stock being registered. All amounts shown are estimates except for the Securities and Exchange Commission ("SEC") registration fee, the Financial Industry Regulatory Authority ("FINRA") filing fee and listing fee.

	<b>Amount to be paid</b>
SEC registration fee	*
FINRA filing fee	*
listing fee	*
Blue sky qualification fees and expenses	*
Printing and engraving expenses	*
Legal fees and expenses	*
Accounting fees and expenses	*
Transfer agent and registrar fees and expenses	*
Miscellaneous expenses	*
Total	*

\* To be provided by amendment.

**Item 14. Indemnification of Directors and Officers.**

The Registrant is incorporated under the laws of the State of Delaware. Section 145 of the Delaware General Corporation Law provides that a Delaware corporation may indemnify any persons who were, are, or are threatened to be made, parties to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of such corporation), by reason of the fact that such person is or was an officer, director, employee or agent of such corporation, or is or was serving at the request of such corporation as an officer, director, employee or agent of another corporation or enterprise. The indemnity may include expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by such person in connection with such action, suit or proceeding, provided that such person acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the corporation's best interests and, with respect to any criminal action or proceeding, had no reasonable cause to believe that his or her conduct was illegal. A Delaware corporation may indemnify any persons who were, are, or are threatened to be made, a party to any threatened, pending or completed action or suit by or in the right of the corporation by reason of the fact that such person is or was a director, officer, employee or agent of such corporation, or is or was serving at the request of such corporation as a director, officer, employee or agent of another corporation or enterprise. The indemnity may include expenses (including attorneys' fees) actually and reasonably incurred by such person in connection with the defense or settlement of such action or suit provided such person acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the corporation's best interests except that no indemnification is permitted without judicial approval if the officer or director is adjudged to be liable to the corporation. Where an officer or director is successful on the merits or otherwise in the defense of any action referred to above, the corporation must indemnify him or her against the expenses (including attorneys' fees) actually and reasonably incurred.

The Registrant's amended and restated certificate of incorporation and amended and restated bylaws, each of which will become effective upon the closing of this offering, provide for the indemnification of its directors and officers to the fullest extent permitted under the Delaware General Corporation Law.

Section 102(b)(7) of the Delaware General Corporation Law permits a corporation to provide in its certificate of incorporation that a director of the corporation shall not be personally liable to the corporation or its stockholders for monetary damages for breach of fiduciary duties as a director, except for liability for any:

- transaction from which the director derives an improper personal benefit;
- act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- unlawful payment of dividends or redemption of shares; or
- breach of a director's duty of loyalty to the corporation or its stockholders.

The Registrant's amended and restated certificate of incorporation includes such a provision. Expenses incurred by any officer or director in defending any such action, suit or proceeding in advance of its final disposition shall be paid by the Registrant upon delivery to it of an undertaking, by or on behalf of such director or officer, to repay all amounts so advanced if it shall ultimately be determined that such director or officer is not entitled to be indemnified by the Registrant.

Section 174 of the Delaware General Corporation Law provides, among other things, that a director who willfully or negligently approves of an unlawful payment of dividends or an unlawful stock purchase or redemption, may be held liable for such actions. A director who was either absent when the unlawful actions were approved or dissented at the time may avoid liability by causing his or her dissent to such actions to be entered in the books containing minutes of the meetings of the board of directors at the time such action occurred or immediately after such absent director receives notice of the unlawful acts.

As permitted by the Delaware General Corporation Law, the Registrant has entered into indemnity agreements with each of its directors and executive officers, that require the Registrant to indemnify such persons against any and all costs and expenses (including attorneys', witness or other professional fees) actually and reasonably incurred by such persons in connection with any action, suit or proceeding (including derivative actions), whether actual or threatened, to which any such person may be made a party by reason of the fact that such person is or was a director or officer or is or was acting or serving as an officer, director, employee or agent of the Registrant or any of its affiliated enterprises. Under these agreements, the Registrant is not required to provide indemnification for certain matters, including:

- indemnification beyond that permitted by the Delaware General Corporation Law;
- indemnification for any proceeding with respect to the unlawful payment of remuneration to the director or officer;
- indemnification for certain proceedings involving a final judgment that the director or officer is required to disgorge profits from the purchase or sale of the Registrant's stock;
- indemnification for proceedings involving a final judgment that the director's or officer's conduct was in bad faith, knowingly fraudulent or deliberately dishonest or constituted willful misconduct or a breach of his or her duty of loyalty, but only to the extent of such specific determination;
- indemnification for proceedings or claims brought by an officer or director against us or any of the Registrant's directors, officers, employees or agents, except for claims to establish a right of indemnification or proceedings or claims approved by the Registrant's board of directors or required by law;
- indemnification for settlements the director or officer enters into without the Registrant's consent; or
- indemnification in violation of any undertaking required by the Securities Act of 1933, as amended (the "Securities Act"), or in any registration statement filed by the Registrant.

The indemnification agreements also set forth certain procedures that will apply in the event of a claim for indemnification thereunder.

Except as otherwise disclosed under the heading "Legal Proceedings" in the "Business" section of this registration statement, there is at present no pending litigation or proceeding involving any of the Registrant's directors or executive officers as to which indemnification is required or permitted, and the Registrant is not aware of any threatened litigation or proceeding that may result in a claim for indemnification.

The Registrant has an insurance policy in place, that covers its officers and directors with respect to certain liabilities, including liabilities arising under the Securities Act or otherwise.

The Registrant plans to enter into an underwriting agreement which provides that the underwriters are obligated, under some circumstances, to indemnify the Registrant's directors, officers and controlling persons against specified liabilities, including liabilities under the Securities Act.

**Item 15. Recent sales of unregistered securities.**

The following sets forth information regarding all unregistered securities sold by the Registrant since February 26, 2014, the date of the Registrant's inception:

- (1) In March 2014, the Registrant issued and sold an aggregate of 19,500,000 shares of common stock to the Registrant's co-founders for an aggregate purchase price of \$1,950. The shares were issued in connection with the Registrant's incorporation and are subject to repurchase by the Registrant under restricted stock agreements with each co-founder.
- (2) In April 2014, the Registrant issued and sold an aggregate of 3,714,285 shares of common stock to the Registrant's co-founders under the 2014 pre-IPO plan and restricted stock agreements with each co-founder for an aggregate purchase price of \$371. The shares are subject to repurchase by the Registrant under the restricted stock agreements with each co-founder.
- (3) From April 2014 to September 30, 2014, the Registrant granted stock options under the 2014 pre-IPO plan to purchase 1,607,500 shares of common stock to its employees, directors, advisors and consultants, having exercise prices ranging from \$0.14 to \$0.39 per share. Of these, options to purchase 48,125 shares of common stock were exercised on August 27, 2014 for aggregate consideration of \$6,738.
- (4) The Registrant issued and sold to investors an aggregate of 15,775,221 shares of series A preferred stock in closings that occurred in March, April and May 2014, at a purchase price of \$1.00 per share, for aggregate consideration of \$15.8 million. Upon the closing of this offering, these shares will convert into 15,775,221 shares of common stock.
- (5) The Registrant issued and sold to investors an aggregate of 14,078,647 shares of series B preferred stock in closings that occurred in July, August, September and October 2014, at a purchase price of \$1.8077 per share, for aggregate consideration of \$25.4 million. Upon the closing of this offering, these shares will convert into 14,078,647 shares of common stock.

The offers, sales and issuances of the securities described in paragraphs (1), (4) and (5) were deemed to be exempt from registration under the Securities Act in reliance on Section 4(a)(2) of the Securities Act and, with respect to paragraph (5) only, Rule 506 promulgated under Regulation D promulgated thereunder as transactions by an issuer not involving a public offering. The recipients of securities in each of these transactions acquired the securities for investment only and not with a view to or for sale in connection with any distribution thereof, and appropriate legends were affixed to the securities issued in these transactions. Each of the recipients of securities in these transactions was an accredited investor within the meaning of

Rule 501 of Regulation D under the Securities Act and had adequate access, through employment, business or other relationships, to information about the Registrant.

The offers, sales and issuances of the securities described in paragraphs (2) and (3) were deemed to be exempt from registration under the Securities Act in reliance on Rule 701 in that the transactions were under compensatory benefit plans and contracts relating to compensation as provided under Rule 701. The recipients of such securities were the Registrant's employees, directors or bona fide consultants and received the securities under the 2014 pre-IPO plan. Appropriate legends were affixed to the securities issued in these transactions. Each of the recipients of securities in these transactions had adequate access, through employment, business or other relationships, to information about the Registrant.

**Item 16. Exhibits and financial statement schedules.****(a) Exhibits.****EXHIBIT INDEX**

<b>Exhibit number</b>	<b>Description of document</b>
1.1†	Form of Underwriting Agreement.
3.1	Amended and Restated Certificate of Incorporation, as filed with the Secretary of State of the State of Delaware on July 23, 2014, as currently in effect.
3.2	Certificate of Amendment of Amended and Restated Certificate of Incorporation, as filed with the Secretary of State of the State of Delaware on September 9, 2014, as currently in effect.
3.3	Certificate of Amendment of Amended and Restated Certificate of Incorporation, as filed with the Secretary of State of the State of Delaware on September 23, 2014, as currently in effect.
3.4	Certificate of Amendment of Amended and Restated Certificate of Incorporation, as filed with the Secretary of State of the State of Delaware on October 13, 2014, as currently in effect.
3.5†	Form of Amended and Restated Certificate of Incorporation to become effective upon the closing of this offering.
3.6	Amended and Restated Bylaws, as currently in effect.
3.7†	Form of Amended and Restated Bylaws to become effective upon the closing of this offering.
4.1†	Form of Common Stock Certificate of the Registrant.
4.2	Amended and Restated Investors' Rights Agreement, dated July 23, 2014, by and among the Registrant and certain of its stockholders.
5.1†	Opinion of Cooley LLP.
10.1+†	Form of Indemnity Agreement by and between the Registrant and its directors and officers.
10.2+†	Flex Pharma, Inc. 2014 Equity Incentive Plan and Forms of Stock Option Agreement, Notice of Exercise and Stock Option Grant Notice thereunder (pre-IPO 2014 Plan).
10.3+†	Flex Pharma, Inc. 2014 Equity Incentive Plan and Forms of Stock Option Agreement, Notice of Exercise and Stock Option Grant Notice thereunder.
10.4+†	Flex Pharma, Inc. Non-Employee Director Compensation Policy.
10.5+†	Offer Letter by and between the Registrant and Christoph Westphal, M.D., Ph.D.
10.6+†	Offer Letter by and between the Registrant and John McCabe.
10.7+†	Offer Letter by and between the Registrant and Robert Hadfield.
10.8+†	Offer Letter by and between the Registrant and Marina Hahn.
10.9	Royalty Agreement, dated March 20, 2014, by and between the Registrant, Bruce Bean, Donald MacKinnon, Roderick MacKinnon and Christoph Westphal.
10.10†	Sublease, dated April 29, 2014, between the Registrant and Fireman Capital Partners, LLC.
10.11†	License Agreement, dated May 1, 2014, by and between the Registrant and ECLDS, LLC.
23.1†	Consent of Cooley LLP. Reference is made to Exhibit 5.1.
24.1†	Power of Attorney.

† To be filed by amendment.

+ Indicates management contract or compensatory plan.

**(b) Financial statement schedules.**

No financial statement schedules are provided because the information called for is not required or is shown either in the financial statements or the notes thereto.

**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 SEC such indemnification is against public policy as expressed in the Securities 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 and will be governed by the final adjudication of such issue.

The Registrant hereby undertakes that:

(a) 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.

(b) 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, the Registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Boston, State of Massachusetts, on the     day of                     , 2014.

**FLEX PHARMA, INC.**

By: \_\_\_\_\_  
Christoph Westphal, M.D., Ph.D.  
*President and Chief Executive Officer*

Pursuant to the requirements of the Securities Act, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
_____ Christoph Westphal, M.D., Ph.D.	President, Chief Executive Officer, Chairman of the Board of Directors (Principal Executive Officer)	, 2014
_____ John McCabe	Vice President, Finance (Principal Financial and Accounting Officer)	, 2014
_____ Peter Barton Hutt	Member of the Board of Directors	, 2014
_____ Marc Kozin	Member of the Board of Directors	, 2014
_____ Stephen Kraus	Member of the Board of Directors	, 2014
_____ Stuart Randle	Member of the Board of Directors	, 2014
_____ John Sculley	Member of the Board of Directors	, 2014



**EXHIBIT INDEX**

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23.1†	Consent of Cooley LLP. Reference is made to Exhibit 5.1.
24.1†	Power of Attorney.

† To be filed by amendment.

+ Indicates management contract or compensatory plan.

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AMENDED AND RESTATED  
CERTIFICATE OF INCORPORATION  
OF  
FLEX PHARMA, INC.

(Pursuant to Sections 242 and 245 of the  
General Corporation Law of the State of Delaware)

**FLEX PHARMA, INC.**, a corporation organized and existing under and by virtue of the provisions of the General Corporation Law of the State of Delaware (the “**General Corporation Law**”),

**DOES HEREBY CERTIFY:**

1. That the name of this corporation is **FLEX PHARMA, INC.**, and that this corporation was originally incorporated pursuant to the General Corporation Law on February 26, 2014, under the name **FLEX PHARMA, INC.**, and an Amended and Restated Certificate of Incorporation was filed on March 20, 2014, and an Amended and Restated Certificate of Incorporation on April 10, 2014 (the “**Restated Certificate**”).

2. That the Board of Directors duly adopted resolutions proposing to amend and restate the Restated Certificate, declaring said amendment and restatement to be advisable and in the best interests of this corporation and its stockholders, and authorizing the appropriate officers of this corporation to solicit the consent of the stockholders therefor, which resolution setting forth the proposed amendment and restatement is as follows:

**RESOLVED**, that the Restated Certificate be amended and restated in its entirety to read as follows:

**FIRST:** The name of this corporation is **FLEX PHARMA, INC.** (the “**Corporation**”).

**SECOND:** The address of the registered office of the Corporation in the State of Delaware 1209 Orange Street, City of Wilmington, County of New Castle, 19801. The name of its registered agent at such address is The Corporation Trust Company.

**THIRD:** The nature of the business or purposes to be conducted or promoted is to engage in any lawful act or activity for which corporations may be organized under the General Corporation Law.

**FOURTH:** The total number of shares of all classes of stock which the Corporation shall have authority to issue is (i) 55,000,000 shares of Common Stock, \$0.0001 par value per share (“**Common Stock**”), and (ii) 29,000,000 shares of Preferred Stock, \$0.0001 par value per share (“**Preferred Stock**”).

The following is a statement of the designations and the powers, privileges and rights, and the qualifications, limitations or restrictions thereof in respect of each class of capital stock of the Corporation.

A. COMMON STOCK

1. General. The voting, dividend and liquidation rights of the holders of the Common Stock are subject to and qualified by the rights, powers and preferences of the holders of the Preferred Stock set forth herein.

2. Voting. The holders of the Common Stock are entitled to one vote for each share of Common Stock held at all meetings of stockholders (and written actions in lieu of meetings); provided, however, that, except as otherwise required by law, holders of Common Stock, as such, shall not be entitled to vote on any amendment to the Amended and Restated Certificate of Incorporation that relates solely to the terms of one or more outstanding series of Preferred Stock if the holders of such affected series are entitled, either separately or together with the holders of one or more other such series, to vote thereon pursuant to the Amended and Restated Certificate of Incorporation or pursuant to the General Corporation Law. There shall be no cumulative voting. The number of authorized shares of Common Stock may be increased or decreased (but not below the number of shares thereof then outstanding) by (in addition to any vote of the holders of one or more series of Preferred Stock that may be required by the terms of the Certificate of Incorporation) the affirmative vote of the holders of shares of capital stock of the Corporation representing a majority of the votes represented by all outstanding shares of capital stock of the Corporation entitled to vote, irrespective of the provisions of Section 242(b)(2) of the General Corporation Law.

B. PREFERRED STOCK

Sixteen Million (16,000,000) shares of the authorized Preferred Stock of the Corporation are hereby designated “**Series A Preferred Stock**” and 13,000,000 shares of the authorized and unissued Preferred Stock of the Corporation are hereby designated “**Series B Preferred Stock**,” each with the following rights, preferences, powers, privileges and restrictions, qualifications and limitations. Unless otherwise indicated, references to “Sections” or “Subsections” in this Part B of this Article Fourth refer to sections and subsections of Part B of this Article Fourth.

1. Dividends.

The Corporation shall not declare, pay or set aside any dividends on shares of any other class or series of capital stock of the Corporation (other than dividends on shares of Common Stock payable in shares of Common Stock) unless (in addition to the obtaining of any consents required elsewhere in the Certificate of Incorporation) the holders of each series of Preferred Stock then outstanding shall first receive, or simultaneously receive, on a pari passu basis, a dividend on each outstanding share of each series of Preferred Stock in an amount at least equal to (i) in the case of a dividend on Common Stock or any class or series that is convertible into Common Stock, that dividend per share of such series of Preferred Stock as would equal the product of (A) the dividend payable on each share of such class or series determined, if applicable, as if all shares of such class or series had been converted into Common Stock and (B) the number of shares of Common Stock issuable upon conversion of a share of such series of Preferred Stock at the then applicable Conversion Price, in each case calculated on the record date for determination of holders entitled to receive such dividend or (ii) in the case of a dividend on any class or series that is not convertible into Common Stock, at a rate per share of such series

of Preferred Stock determined by (A) dividing the amount of the dividend payable on each share of such class or series of capital stock by the original issuance price of such class or series of capital stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to such class or series) and (B) multiplying such fraction by an amount equal to the applicable Original Issue Price (as defined below); provided that, if the Corporation declares, pays or sets aside, on the same date, a dividend on shares of more than one class or series of capital stock of the Corporation, the dividend payable to the holders of each series of Preferred Stock pursuant to this Section 1 shall be calculated based upon the dividend on the class or series of capital stock that would result in the highest Preferred Stock dividend for each series of Preferred Stock. The “**Series A Original Issue Price**” shall mean \$1.00 per share, subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series A Preferred Stock. The “**Series B Original Issue Price**” shall mean \$1.8077 per share, subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series B Preferred Stock. The Series A Original Issue Price and Series B Original Issue Price are sometimes referred to herein as the “**Original Issue Price**.”

2. Liquidation, Dissolution or Winding Up; Certain Mergers, Consolidations and Asset Sales.

2.1 Preferential Payments to Holders of Preferred Stock. In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, the holders of shares of each series of Preferred Stock then outstanding shall be entitled to be paid out of the assets of the Corporation available for distribution to its stockholders on a pari passu basis and before any payment shall be made to the holders of Common Stock by reason of their ownership thereof, an amount per share of such Preferred Stock equal to the greater of (a) in the case of the Series A Preferred Stock (i) the Series A Original Issue Price, plus any dividends declared but unpaid thereon, or (ii) such amount per share of Series A Preferred Stock as would have been payable had all shares of Series A Preferred Stock been converted into Common Stock pursuant to Section 4 immediately prior to such liquidation, dissolution, winding up or Deemed Liquidation Event (the amount payable pursuant to this clause (a) is hereinafter referred to as the “**Series A Liquidation Amount**”), and (b) in the case of the Series B Preferred Stock (i) the Series B Original Issue Price, plus any dividends declared but unpaid thereon, or (ii) such amount per share of Series B Preferred Stock as would have been payable had all shares of Series B Preferred Stock been converted into Common Stock pursuant to Section 4 immediately prior to such liquidation, dissolution, winding up or Deemed Liquidation Event (the amount payable pursuant to this clause (b) is hereinafter referred to as the “**Series B Liquidation Amount**”) and together with the Series A Liquidation Amount, the “**Liquidation Amount**”). If upon any such liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, the assets of the Corporation available for distribution to its stockholders shall be insufficient to pay the holders of shares of each series of Preferred Stock the full amount to which they shall be entitled under this Subsection 2.1, the holders of shares of each series of Preferred Stock shall share ratably in any distribution of the assets available for distribution in proportion to the respective amounts which would otherwise be payable in respect of the shares held by them upon such distribution if all amounts payable on or with respect to such shares were paid in full.

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2.2 Payments to Holders of Common Stock. In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, after the payment of all preferential amounts required to be paid to the holders of shares of Preferred Stock, the remaining assets of the Corporation available for distribution to its stockholders shall be distributed among the holders of shares of Common Stock, pro rata based on the number of shares of Common Stock held by each such holder.

2.3 Deemed Liquidation Events.

2.3.1 Definition. Each of the following events shall be considered a “**Deemed Liquidation Event**” unless (i) the holders of at least seventy-five percent (75%) of the then outstanding shares of Series A Preferred Stock; and (ii) the holders of at least sixty percent (60%) of the then outstanding shares of Series B Preferred Stock, in the case of each of clause (i) and (ii), voting as separate classes, on an as-converted to Common Stock basis (the “**Requisite Investors**”) elect otherwise by written notice sent to the Corporation at least ten (10) days prior to the effective date of any such event:

- (a) a merger or consolidation in which
  - (i) the Corporation is a constituent party or
  - (ii) a subsidiary of the Corporation is a constituent party and the Corporation issues shares of its capital stock pursuant to such merger or consolidation,

except any such merger or consolidation involving the Corporation or a subsidiary in which the shares of capital stock of the Corporation outstanding immediately prior to such merger or consolidation continue to represent, or are converted into or exchanged for shares of capital stock that represent, immediately following such merger or consolidation, at least a majority, by voting power, of the capital stock of (1) the surviving or resulting corporation or (2) if the surviving or resulting corporation is a wholly owned subsidiary of another corporation immediately following such merger or consolidation, the parent corporation of such surviving or resulting corporation (provided that, for the purpose of this Subsection 2.3.1, all shares of Common Stock issuable upon exercise of Options (as defined below) outstanding immediately prior to such merger or consolidation or upon conversion of Convertible Securities (as defined below) outstanding immediately prior to such merger or consolidation shall be deemed to be outstanding immediately prior to such merger or consolidation and, if applicable, converted or exchanged in such merger or consolidation on the same terms as the actual outstanding shares of Common Stock are converted or exchanged); or

(b) the sale, lease, transfer, exclusive license or other disposition, in a single transaction or series of related transactions, by the Corporation or any subsidiary of the Corporation of all or substantially all the assets of the Corporation and its subsidiaries taken as a whole, or the sale or disposition (whether by merger or otherwise) of one or more subsidiaries of the Corporation if substantially all of the assets of the Corporation and its subsidiaries taken as a whole are held by such subsidiary or subsidiaries, except where such sale, lease, transfer, exclusive license or other disposition is to a wholly owned subsidiary of the

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Corporation, and except with regard to an exclusive license where such license is for less than substantially all of the rights to such assets.

2.3.2 Effecting a Deemed Liquidation Event.

(a) The Corporation shall not have the power to effect a Deemed Liquidation Event referred to in Subsection 2.3.1(a) (i) unless the agreement or plan of merger or consolidation for such transaction (the “**Merger Agreement**”) provides that the consideration payable to the stockholders of the Corporation shall be allocated among the holders of capital stock of the Corporation in accordance with Subsections 2.1 and 2.2.

(b) In the event of a Deemed Liquidation Event referred to in Subsection 2.3.1(a)(ii) or 2.3.1(b), if the Corporation does not effect a dissolution of the Corporation under the General Corporation Law within 90 days after such Deemed Liquidation Event, then (i) the Corporation shall send a written notice to each holder of Preferred Stock no later than the 90th day after the Deemed Liquidation Event advising such holders of their right (and the requirements to be met to secure such right) pursuant to the terms of the following clause (ii) to require the redemption of such shares of Preferred Stock, and (ii) unless the Requisite Investors elect in a written instrument delivered to the Corporation not later than 120 days after such Deemed Liquidation Event not to proceed with such redemption, the Corporation shall use the consideration received by the Corporation for such Deemed Liquidation Event (net of any retained liabilities associated with the assets sold or technology licensed, as determined in good faith by the Board of Directors of the Corporation), together with any other assets of the Corporation available for distribution to its stockholders (the “**Available Proceeds**”), to the extent legally available therefor, on the 150th day after such Deemed Liquidation Event (the “**Redemption Date**”), to redeem all outstanding shares of each series Preferred Stock at a price per share equal to the applicable Liquidation Amount. Notwithstanding the foregoing, in the event of a redemption pursuant to the preceding sentence, if the Available Proceeds are not sufficient to redeem all outstanding shares of each series of Preferred Stock, the Corporation shall redeem a pro rata portion of each holder’s shares of Preferred Stock to the fullest extent of such Available Proceeds, based on the respective amounts which would otherwise be payable in respect of the shares to be redeemed if the Available Proceeds were sufficient to redeem all such shares, and shall redeem the remaining shares to have been redeemed as soon as practicable after the Corporation has funds legally available therefor.

(c) The Corporation shall send a written notice of the redemption (the “**Redemption Notice**”) to each holder of record of each series of Preferred Stock not less than twenty (20) days prior to the Redemption Date. Such Redemption Notice shall state:

- (i) the number of shares of each series of Preferred Stock held by the holder that the Corporation shall redeem on the Redemption Date;
- (ii) the Redemption Date and the Liquidation Amount for each series of Preferred Stock held by such holder;

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- (iii) the date upon which the holder’s right (if any) to convert shares terminates (as determined in accordance with Subsection 4.1.2); and
- (iv) that the holder is to surrender to the Corporation, in the manner and at the place designated, his, her or its certificate or certificates representing the shares of Preferred Stock to be redeemed.

(d) On or before the Redemption Date, each holder of shares of each series of Preferred Stock to be redeemed, unless such holder has exercised his, her or its right to convert such shares in accordance with Section 4, shall surrender the certificate or certificates representing such shares, if any (or, if such registered holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate) to the Corporation, in the manner and at the place designated in the Redemption Notice, and thereupon the applicable Liquidation Amount for such shares shall be payable to the order of the person whose name appears on such certificate or certificates as the owner thereof.

(e) If, on the Redemption Date the Liquidation Amount payable upon redemption of the shares of Preferred Stock to be redeemed is paid or tendered for payment or deposited with an independent payment agent so as to be available therefor in a timely manner, then notwithstanding that the certificates evidencing any of the shares of Preferred Stock so called for redemption shall not have been surrendered, dividends with respect to such shares of Preferred Stock shall cease to accrue after the Redemption Date and all rights with respect to such shares shall forthwith after the Redemption Date terminate, except only the right of the holders to receive the applicable Liquidation Amount without interest upon surrender of their certificate or certificates therefor.

(f) Prior to the distribution or redemption provided for in Subsections 2.3.2(b)— (e), the Corporation shall not expend or dissipate the consideration received for such Deemed Liquidation Event, except to discharge expenses incurred in connection with such Deemed Liquidation Event or in the ordinary course of business.

2.3.3 Amount Deemed Paid or Distributed. The amount deemed paid or distributed to the holders of capital stock of the Corporation upon any such merger, consolidation, sale, transfer, exclusive license, other disposition or redemption shall be the cash or the value of the property, rights or securities paid or distributed to such holders by the Corporation or the acquiring person, firm or other entity. The value of such property, rights or securities shall be determined in good faith by the Board of Directors of the Corporation.

2.3.4 Allocation of Escrow and Contingent Consideration. In the event of a Deemed Liquidation Event pursuant to Subsection 2.3.1(a)(i), if any portion of the consideration payable to the stockholders of the Corporation is payable only upon satisfaction of contingencies (the “**Additional Consideration**”), the Merger Agreement shall provide that (a) the portion of such consideration that is not Additional Consideration (such portion, the “**Initial**

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**Consideration**”) shall be allocated among the holders of capital stock of the Corporation in accordance with Subsections 2.1 and 2.2 as if the Initial Consideration were the only consideration payable in connection with such Deemed Liquidation Event; and (b) any Additional Consideration which becomes payable to the stockholders of the Corporation upon satisfaction of such contingencies shall be allocated among the holders of capital stock of the Corporation in accordance with Subsections 2.1 and 2.2 after taking into account the previous payment of the Initial Consideration as part of the same transaction. For the purposes of this Subsection 2.3.4, consideration placed into escrow or retained as holdback to be available for satisfaction of indemnification or similar obligations in connection with such Deemed Liquidation Event shall be deemed to be Additional Consideration.

### 3. Voting.

3.1 General. On any matter presented to the stockholders of the Corporation for their action or consideration at any meeting of stockholders of the Corporation (or by written consent of stockholders in lieu of meeting), each holder of outstanding shares of a series of Preferred Stock shall be entitled to cast the number of votes equal to the number of whole shares of Common Stock into which the shares of such series of Preferred Stock held by such holder are

convertible (based on the then applicable Conversion Price of such series of Preferred Stock) as of the record date for determining stockholders entitled to vote on such matter. Except as provided by law or by the other provisions of the Certificate of Incorporation, holders of Preferred Stock shall vote together with the holders of Common Stock as a single class.

3.2 Election of Directors. The holders of record of the shares of Preferred Stock, voting exclusively and together as a separate class on an as-converted to Common Stock basis, shall be entitled to elect two (2) directors of the Corporation (the "**Preferred Directors**"). Any director elected as provided in the preceding sentence may be removed without cause by, and only by, the affirmative vote of the holders of the shares of the class or series of capital stock entitled to elect such director or directors, given either at a special meeting of such stockholders duly called for that purpose or pursuant to a written consent of stockholders. If the holders of shares of Preferred Stock fail to elect a sufficient number of directors to fill all directorships for which they are entitled to elect directors, voting exclusively and as a separate class, pursuant to the first sentence of this Subsection 3.2, then any directorship not so filled shall remain vacant until such time as the holders of the Preferred Stock elect a person to fill such directorship by vote or written consent in lieu of a meeting; and no such directorship may be filled by stockholders of the Corporation other than by the stockholders of the Corporation that are entitled to elect a person to fill such directorship, voting exclusively and as a separate class. The holders of record of the shares of Common Stock and of any other class or series of voting stock (including the Preferred Stock), exclusively and voting together as a single class, shall be entitled to elect the balance of the total number of directors of the Corporation. At any meeting held for the purpose of electing a director, the presence in person or by proxy of the holders of a majority of the outstanding shares of the class or series entitled to elect such director shall constitute a quorum for the purpose of electing such director. Except as otherwise provided in this Subsection 3.2, a vacancy in any directorship filled by the holders of any class or series shall be filled only by vote or written consent in lieu of a meeting of the holders of such class or series or by any remaining director or directors elected by the holders of such class or series pursuant to this Subsection 3.2.

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3.3 Preferred Stock Protective Provisions. At any time when at least 2,500,000 shares of Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Preferred Stock) are outstanding, the Corporation shall not, either directly or indirectly by amendment, merger, consolidation or otherwise, do any of the following without (in addition to any other vote required by law or the Certificate of Incorporation) the written consent or affirmative vote of a majority of the Preferred Stock, given in writing or by vote at a meeting, consenting or voting (as the case may be) separately as a class on an as-converted to Common Stock basis, and any such act or transaction entered into without such consent or vote shall be null and void *ab initio*, and of no force or effect:

- (a) amend, alter or repeal any provision of the Certificate of Incorporation or Bylaws of the Corporation;
- (b) create, or authorize the creation of, or issue or obligate itself to issue shares of (or debt convertible into shares of), any additional class or series of capital stock unless the same ranks junior to each series of Preferred Stock with respect to the distribution of assets on the liquidation, dissolution or winding up of the Corporation, the payment of dividends and rights of redemption, or increase the authorized number of shares of each series of Preferred Stock or increase the authorized number of shares of any additional class or series of capital stock unless the same ranks junior to each series of Preferred Stock with respect to the distribution of assets on the liquidation, dissolution or winding up of the Corporation, the payment of dividends and rights of redemption;
- (c) purchase or redeem (or permit any subsidiary to purchase or redeem) or pay or declare any dividend or make any distribution on, any shares of capital stock of the Corporation other than (i) redemptions of or dividends or distributions on the Preferred Stock as expressly authorized herein, (ii) dividends or other distributions payable on the Common Stock solely in the form of additional shares of Common Stock and (iii) repurchases of stock from former employees, officers, directors, consultants or other persons who performed services for the Corporation or any subsidiary in connection with the cessation of such employment or service at the lower of the original purchase price or the then-current fair market value thereof;
- (d) create, or authorize the creation of, or issue, or authorize the issuance of any debt security, or permit any subsidiary to take any such action with respect to any debt security, if the aggregate indebtedness of the Corporation and its subsidiaries for borrowed money following such action would exceed \$250,000, other than equipment leases or trade accounts of the Corporation or any direct or indirect subsidiary of the Corporation arising in the ordinary course of business;
- (e) create, or hold capital stock in, any subsidiary that is not wholly owned (either directly or through one or more other subsidiaries) by the Corporation, or sell, transfer or otherwise dispose of any capital stock of any direct or indirect subsidiary of the Corporation, or permit any direct or indirect subsidiary to sell, lease, transfer, exclusively license or otherwise dispose (in a single transaction or series of related transactions) of all or substantially all of the assets of such subsidiary;

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- (f) effect any acquisition of capital stock of another entity or the acquisition of all or substantially all of the assets of another entity where the value of the consideration paid by the Corporation in such transaction exceeds \$1,000,000;
- (g) enter into any license agreement granting any third party exclusive rights relating to the Corporation's material intellectual property;
- (h) increase the authorized number of directors constituting the Board of Directors;
- (i) increase the number of shares of Common Stock reserved for issuance under the Corporation's 2014 Equity Incentive Plan beyond 6,214,285 or create any new equity incentive plan;
- (j) change the principal business of the Corporation, enter new lines of business, or exit the current line of business; or
- (k) enter into an agreement to do any of the foregoing.

3.4 Series A Preferred Stock Protective Provision. At any time when at least 2,500,000 shares of Series A Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series A Preferred Stock) are outstanding, the Corporation shall not, either directly or indirectly by amendment, merger, consolidation or otherwise, do any of the following without the written consent or affirmative vote of the holders of at least seventy-five percent (75%) of the outstanding shares of Series A Preferred Stock, given in writing or by vote at a meeting, consenting or voting (as the case may be) separately as a class, and any such act or transaction entered into without such consent or vote shall be null and void *ab initio*, and of no force or effect:

3.4.1 amend, alter or repeal any provision of the Certificate of Incorporation or Bylaws of the Corporation in a manner that adversely affects the powers, preferences or rights of the Series A Preferred Stock (including, without limitation, by amending, altering or repealing any provision of this Section 3.4);

3.4.2 liquidate, dissolve or wind-up the business and affairs of the Corporation, effect any Deemed Liquidation Event, or consent to any of the foregoing;

3.4.3 (i) reclassify, alter or amend any existing security of the Corporation that is pari passu with the Series A Preferred Stock in respect of the distribution of assets on the liquidation, dissolution or winding up of the Corporation, the payment of dividends or rights of redemption, if such reclassification, alteration or amendment would render such other security senior to the Series A Preferred Stock in respect of any such right, preference or privilege, or (ii) reclassify, alter or amend any existing security of the Corporation that is junior to the Series A Preferred Stock in respect of the distribution of assets on the liquidation, dissolution or winding up of the Corporation, the payment of dividends or rights of redemption, if such reclassification,

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alteration or amendment would render such other security senior to or pari passu with the Series A Preferred Stock in respect of any such right, preference or privilege; or

3.4.4 increase the authorized number of shares of Series A Preferred Stock.

3.5 Series B Preferred Stock Protective Provision. At any time when at least 2,500,000 shares of Series B Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series B Preferred Stock) are outstanding, the Corporation shall not, either directly or indirectly by amendment, merger, consolidation or otherwise, do any of the following without the written consent or affirmative vote of the holders of at least sixty percent (60%) of the outstanding shares of Series B Preferred Stock, given in writing or by vote at a meeting, consenting or voting (as the case may be) separately as a class, and any such act or transaction entered into without such consent or vote shall be null and void *ab initio*, and of no force or effect:

3.5.1 amend, alter or repeal any provision of the Certificate of Incorporation or Bylaws of the Corporation in a manner that adversely affects the powers, preferences or rights of the Series B Preferred Stock (including, without limitation, by amending, altering or repealing any provision of this Section 3.5);

3.5.2 liquidate, dissolve or wind-up the business and affairs of the Corporation, effect any Deemed Liquidation Event, or consent to any of the foregoing;

3.5.3 (i) reclassify, alter or amend any existing security of the Corporation that is pari passu with the Series B Preferred Stock in respect of the distribution of assets on the liquidation, dissolution or winding up of the Corporation, the payment of dividends or rights of redemption, if such reclassification, alteration or amendment would render such other security senior to the Series B Preferred Stock in respect of any such right, preference or privilege, or (ii) reclassify, alter or amend any existing security of the Corporation that is junior to the Series B Preferred Stock in respect of the distribution of assets on the liquidation, dissolution or winding up of the Corporation, the payment of dividends or rights of redemption, if such reclassification, alteration or amendment would render such other security senior to or pari passu with the Series B Preferred Stock in respect of any such right, preference or privilege; or

3.5.4 increase the authorized number of shares of Series B Preferred Stock.

#### 4. Optional Conversion.

The holders of each series of Preferred Stock shall have conversion rights as follows (the “**Conversion Rights**”):

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##### 4.1 Right to Convert.

4.1.1 Conversion Ratio. Each share of Series A Preferred Stock shall be convertible, at the option of the holder thereof, at any time and from time to time, and without the payment of additional consideration by the holder thereof, into such number of fully paid and nonassessable shares of Common Stock as is determined by dividing the Series A Original Issue Price by the Conversion Price (as defined below) in effect at the time of conversion. Each share of Series B Preferred Stock shall be convertible, at the option of the holder thereof, at any time and from time to time, and without the payment of additional consideration by the holder thereof, into such number of fully paid and nonassessable shares of Common Stock as is determined by dividing the Series B Original Issue Price by the Conversion Price (as defined below) in effect at the time of conversion. As of the date of filing this Amended and Restated Certificate of Incorporation, the “**Conversion Price**” applicable to (i) the Series A Preferred Stock shall be equal to \$1.00, which number reflects all applicable adjustments to date, and (ii) the Series B Preferred Stock shall initially be equal to \$1.8077. The Conversion Price, and the rate at which shares of each series of Preferred Stock may be converted into shares of Common Stock, shall be subject to adjustment as provided below.

4.1.2 Termination of Conversion Rights. In the event of a liquidation, dissolution or winding up of the Corporation or a Deemed Liquidation Event, the Conversion Rights shall terminate at the close of business on the last full day preceding the date fixed for the payment of any such amounts distributable on such event to the holders of each series of Preferred Stock.

4.2 Fractional Shares. No fractional shares of Common Stock shall be issued upon conversion of the Preferred Stock. In lieu of any fractional shares to which the holder would otherwise be entitled, the Corporation shall pay cash equal to such fraction multiplied by the fair market value of a share of Common Stock as determined in good faith by the Board of Directors of the Corporation. Whether or not fractional shares would be issuable upon such conversion shall be determined on the basis of the total number of shares of each series of Preferred Stock the holder is at the time converting into Common Stock and the aggregate number of shares of Common Stock issuable upon such conversion.

##### 4.3 Mechanics of Conversion.

4.3.1 Notice of Conversion. In order for a holder of Preferred Stock to voluntarily convert shares of any series of Preferred Stock into shares of Common Stock, such holder shall surrender the certificate or certificates for such shares of Preferred Stock (or, if such registered holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate), at the office of the transfer agent for the Preferred Stock (or at the principal office of the Corporation if the Corporation serves as its own transfer agent), together with written notice that such holder elects to convert all or any number of the shares of the Preferred Stock represented by such certificate or certificates and, if applicable, any event on which such conversion is contingent. Such notice shall state such holder's name or the names of the nominees in which such holder wishes the certificate or certificates for shares of Common Stock to be issued. If required by the Corporation, certificates surrendered for conversion shall be endorsed or accompanied by a written instrument or instruments of transfer, in form

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satisfactory to the Corporation, duly executed by the registered holder or his, her or its attorney duly authorized in writing. The close of business on the date of receipt by the transfer agent (or by the Corporation if the Corporation serves as its own transfer agent) of such certificates (or lost certificate affidavit and agreement) and notice shall be the time of conversion (the "**Conversion Time**"), and the shares of Common Stock issuable upon conversion of the shares represented by such certificate shall be deemed to be outstanding of record as of such date. The Corporation shall, as soon as practicable after the Conversion Time, (i) issue and deliver to such holder of Preferred Stock, or to his, her or its nominees, a certificate or certificates for the number of full shares of Common Stock issuable upon such conversion in accordance with the provisions hereof and a certificate for the number (if any) of the shares of Preferred Stock represented by the surrendered certificate that were not converted into Common Stock, (ii) pay in cash such amount as provided in Subsection 4.2 in lieu of any fraction of a share of Common Stock otherwise issuable upon such conversion and (iii) pay all declared but unpaid dividends on the shares of Preferred Stock converted.

4.3.2 Reservation of Shares. The Corporation shall at all times when any series of Preferred Stock shall be outstanding, reserve and keep available out of its authorized but unissued capital stock, for the purpose of effecting the conversion of any series of Preferred Stock, such number of its duly authorized shares of Common Stock as shall from time to time be sufficient to effect the conversion of all outstanding Preferred Stock; and if at any time the number of authorized but unissued shares of Common Stock shall not be sufficient to effect the conversion of all then outstanding shares of Preferred Stock, the Corporation shall take such corporate action as may be necessary to increase its authorized but unissued shares of Common Stock to such number of shares as shall be sufficient for such purposes, including, without limitation, engaging in best efforts to obtain the requisite stockholder approval of any necessary amendment to the Certificate of Incorporation. Before taking any action which would cause an adjustment reducing the Conversion Price applicable to any series of Preferred Stock below the then par value of the shares of Common Stock issuable upon conversion of the Preferred Stock, the Corporation will take any corporate action which may, in the opinion of its counsel, be necessary in order that the Corporation may validly and legally issue fully paid and nonassessable shares of Common Stock at such adjusted Conversion Price.

4.3.3 Effect of Conversion. All shares of Preferred Stock which shall have been surrendered for conversion as herein provided shall no longer be deemed to be outstanding and all rights with respect to such shares shall immediately cease and terminate at the Conversion Time, except only the right of the holders thereof to receive shares of Common Stock in exchange therefor, to receive payment in lieu of any fraction of a share otherwise issuable upon such conversion as provided in Subsection 4.2 and to receive payment of any dividends declared but unpaid thereon. Any shares of Preferred Stock so converted shall be retired and cancelled and may not be reissued as shares of such series, and the Corporation may thereafter take such appropriate action (without the need for stockholder action) as may be necessary to reduce the authorized number of shares of any series of Preferred Stock accordingly.

4.3.4 No Further Adjustment. Upon any such conversion, no adjustment to the Conversion Price applicable to any series of Preferred Stock shall be made for any

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declared but unpaid dividends on the Preferred Stock surrendered for conversion or on the Common Stock delivered upon conversion.

4.3.5 Taxes. The Corporation shall pay any and all issue and other similar taxes that may be payable in respect of any issuance or delivery of shares of Common Stock upon conversion of shares of any series of Preferred Stock pursuant to this Section 4. The Corporation shall not, however, be required to pay any tax which may be payable in respect of any transfer involved in the issuance and delivery of shares of Common Stock in a name other than that in which the shares of Preferred Stock so converted were registered, and no such issuance or delivery shall be made unless and until the person or entity requesting such issuance has paid to the Corporation the amount of any such tax or has established, to the satisfaction of the Corporation, that such tax has been paid.

#### 4.4 Adjustments to Conversion Price for Diluting Issues.

4.4.1 Special Definitions. For purposes of this Article Fourth, the following definitions shall apply:

- Convertible Securities.
- (a) "**Option**" shall mean rights, options or warrants to subscribe for, purchase or otherwise acquire Common Stock or
  - (b) "**Series B Original Issue Date**" shall mean the date on which the first share of Series B Preferred Stock was issued.
  - (c) "**Convertible Securities**" shall mean any evidences of indebtedness, shares or other securities directly or indirectly convertible into or exchangeable for Common Stock, but excluding Options.
  - (d) "**Additional Shares of Common Stock**" shall mean all shares of Common Stock issued (or, pursuant to Subsection 4.4.3 below, deemed to be issued) by the Corporation after the Series B Original Issue Date, other than (1) the following shares of Common Stock and (2) shares of Common Stock deemed issued pursuant to the following Options and Convertible Securities (clauses (1) and (2), collectively, "**Exempted Securities**"):
    - (i) shares of Common Stock, Options or Convertible Securities issued as a dividend or distribution on all series of Preferred Stock on a pro rata basis;
    - (ii) shares of Common Stock, Options or Convertible Securities issued by reason of a dividend, stock split, split-up or other distribution on shares of Common Stock that is covered by Subsection 4.5, 4.6, 4.7 or 4.8;



- (iii) shares of Common Stock or Options issued to employees or directors of, or consultants or advisors to, the Corporation or any of its subsidiaries pursuant to a plan, agreement or arrangement

approved by the Board of Directors of the Corporation;

- (iv) shares of Common Stock or Convertible Securities actually issued upon the exercise of Options or shares of Common Stock actually issued upon the conversion or exchange of Convertible Securities, in each case provided such issuance is pursuant to the terms of such Option or Convertible Security;
- (v) shares of Common Stock, Options or Convertible Securities issued to banks, equipment lessors or other financial institutions, or to real property lessors, pursuant to a debt financing, equipment leasing or real property leasing transaction approved by the Board of Directors of the Corporation;
- (vi) shares of Common Stock, Options or Convertible Securities issued to suppliers or third party service providers in connection with the provision of goods or services pursuant to transactions approved by the Board of Directors of the Corporation; or
- (vii) shares of Common Stock, Options or Convertible Securities issued in connection with sponsored research, collaboration, technology license, development, OEM, marketing or other similar agreements or strategic partnerships approved by the Board of Directors of the Corporation.

4.4.2 No Adjustment of Conversion Price. Notwithstanding anything herein to the contrary, (i) any adjustment in the Series A Conversion Price may be waived, either prospectively or retroactively in a particular instance, by the written consent or vote of the holders of at least seventy-five percent (75%) of the outstanding shares of Series A Preferred Stock, and any such waiver shall bind all holders of shares of Series A Preferred Stock, and (ii) any adjustment in the Series B Conversion Price may be waived, either prospectively or retroactively in a particular instance, by the written consent or vote of the holders of at least sixty percent (60%) of the outstanding shares of Series B Preferred Stock, and any such waiver shall bind all holders of shares of Series B Preferred Stock.

4.4.3 Deemed Issue of Additional Shares of Common Stock.

(a) If the Corporation at any time or from time to time after the Series B Original Issue Date shall issue any Options or Convertible Securities (excluding Options or Convertible Securities which are themselves Exempted Securities) or shall fix a record date for the determination of holders of any class of securities entitled to receive any such Options or Convertible Securities, then the maximum number of shares of Common Stock (as set

forth in the instrument relating thereto, assuming the satisfaction of any conditions to exercisability, convertibility or exchangeability but without regard to any provision contained therein for a subsequent adjustment of such number) issuable upon the exercise of such Options or, in the case of Convertible Securities and Options therefor, the conversion or exchange of such Convertible Securities, shall be deemed to be Additional Shares of Common Stock issued as of the time of such issue or, in case such a record date shall have been fixed, as of the close of business on such record date.

(b) If the terms of any Option or Convertible Security, the issuance of which resulted in an adjustment to the Conversion Price applicable to any series of Preferred Stock pursuant to the terms of Subsection 4.4.4, are revised as a result of an amendment to such terms or any other adjustment pursuant to the provisions of such Option or Convertible Security (but excluding automatic adjustments to such terms pursuant to anti-dilution or similar provisions of such Option or Convertible Security) to provide for either (1) any increase or decrease in the number of shares of Common Stock issuable upon the exercise, conversion and/or exchange of any such Option or Convertible Security or (2) any increase or decrease in the consideration payable to the Corporation upon such exercise, conversion and/or exchange, then, effective upon such increase or decrease becoming effective, the Conversion Price computed upon the original issue of such Option or Convertible Security (or upon the occurrence of a record date with respect thereto) shall be readjusted to such Conversion Price as would have obtained had such revised terms been in effect upon the original date of issuance of such Option or Convertible Security. Notwithstanding the foregoing, no readjustment pursuant to this clause (b) shall have the effect of increasing the Conversion Price applicable to any series of Preferred Stock to an amount which exceeds the lower of (i) the Conversion Price of such series of Preferred Stock in effect immediately prior to the original adjustment made as a result of the issuance of such Option or Convertible Security, or (ii) the Conversion Price with respect to such series of Preferred Stock that would have resulted from any issuances of Additional Shares of Common Stock (other than deemed issuances of Additional Shares of Common Stock as a result of the issuance of such Option or Convertible Security) between the original adjustment date and such readjustment date.

(c) If the terms of any Option or Convertible Security (excluding Options or Convertible Securities which are themselves Exempted Securities), the issuance of which did not result in an adjustment to the Conversion Price applicable to a series of Preferred Stock pursuant to the terms of Subsection 4.4.4 (either because the consideration per share (determined pursuant to Subsection 4.4.5) of the Additional Shares of Common Stock subject thereto was equal to or greater than the Conversion Price then in effect for such series of Preferred Stock, or because such Option or Convertible Security was issued before the Series B Original Issue Date), are revised after the Series B Original Issue Date as a result of an amendment to such terms or any other adjustment pursuant to the provisions of such Option or Convertible Security (but excluding automatic adjustments to such terms pursuant to anti-dilution or similar provisions of such Option or Convertible Security) to provide for either (1) any increase in the number of shares of Common Stock issuable upon the exercise, conversion or exchange of any such Option or Convertible Security or (2) any decrease in the consideration payable to the Corporation upon such exercise, conversion or exchange, then such Option or Convertible Security, as so amended or adjusted, and the Additional Shares of Common Stock

subject thereto (determined in the manner provided in Subsection 4.4.3(a)) shall be deemed to have been issued effective upon such increase or decrease becoming effective.

(d) Upon the expiration or termination of any unexercised Option or unconverted or unexchanged Convertible Security (or portion thereof) which resulted (either upon its original issuance or upon a revision of its terms) in an adjustment to the Conversion Price applicable to any series of Preferred Stock pursuant to the terms of Subsection 4.4.4, such Conversion Price shall be readjusted to a Conversion Price as would have obtained had such Option or Convertible Security (or portion thereof) never been issued.

(e) If the number of shares of Common Stock issuable upon the exercise, conversion and/or exchange of any Option or Convertible Security, or the consideration payable to the Corporation upon such exercise, conversion and/or exchange, is calculable at the time such Option or Convertible Security is issued or amended but is subject to adjustment based upon subsequent events, any adjustment to the Conversion Price applicable to any series of Preferred Stock provided for in this Subsection 4.4.3 shall be effected at the time of such issuance or amendment based on such number of shares or amount of consideration without regard to any provisions for subsequent adjustments (and any subsequent adjustments shall be treated as provided in clauses (b) and (c) of this Subsection 4.4.3). If the number of shares of Common Stock issuable upon the exercise, conversion and/or exchange of any Option or Convertible Security, or the consideration payable to the Corporation upon such exercise, conversion and/or exchange, cannot be calculated at all at the time such Option or Convertible Security is issued or amended, any adjustment to the Conversion Price applicable to any series of Preferred Stock that would result under the terms of this Subsection 4.4.3 at the time of such issuance or amendment shall instead be effected at the time such number of shares and/or amount of consideration is first calculable (even if subject to subsequent adjustments), assuming for purposes of calculating such adjustment to the Conversion Price that such issuance or amendment took place at the time such calculation can first be made.

4.4.4 Adjustment of Conversion Price Upon Issuance of Additional Shares of Common Stock. In the event the Corporation shall at any time after the Series B Original Issue Date issue Additional Shares of Common Stock (including Additional Shares of Common Stock deemed to be issued pursuant to Subsection 4.4.3), without consideration or for a consideration per share less than the Conversion Price applicable to any series of Preferred Stock in effect immediately prior to such issue, then the Conversion Price applicable to any such series of Preferred Stock shall be reduced, concurrently with such issue, to a price (calculated to the nearest one-hundredth of a cent) determined in accordance with the following formula:

$$CP_2 = CP_1 * (A + B) \div (A + C).$$

For purposes of the foregoing formula, the following definitions shall apply:

(a) "CP<sub>2</sub>" shall mean the Conversion Price of such series of Preferred Stock in effect immediately after such issue of Additional Shares of Common Stock

(b) "CP<sub>1</sub>" shall mean the Conversion Price of such series of Preferred Stock in effect immediately prior to such issue of Additional Shares of Common Stock;

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(c) "A" shall mean the number of shares of Common Stock outstanding immediately prior to such issue of Additional Shares of Common Stock (treating for this purpose as outstanding all shares of Common Stock issuable upon exercise of Options outstanding immediately prior to such issue or upon conversion or exchange of Convertible Securities (including the Preferred Stock) outstanding (assuming exercise of any outstanding Options therefor) immediately prior to such issue);

(d) "B" shall mean the number of shares of Common Stock that would have been issued if such Additional Shares of Common Stock had been issued at a price per share equal to CP<sub>1</sub> (determined by dividing the aggregate consideration received by the Corporation in respect of such issue by CP<sub>1</sub>); and

(e) "C" shall mean the number of such Additional Shares of Common Stock issued in such transaction.

4.4.5 Determination of Consideration. For purposes of this Subsection 4.4, the consideration received by the Corporation for the issue of any Additional Shares of Common Stock shall be computed as follows:

(a) Cash and Property: Such consideration shall:

(i) insofar as it consists of cash, be computed at the aggregate amount of cash received by the Corporation, excluding amounts paid or payable for accrued interest;

(ii) insofar as it consists of property other than cash, be computed at the fair market value thereof at the time of such issue, as determined in good faith by the Board of Directors of the Corporation; and

(iii) in the event Additional Shares of Common Stock are issued together with other shares or securities or other assets of the Corporation for consideration which covers both, be the proportion of such consideration so received, computed as provided in clauses (i) and (ii) above, as determined in good faith by the Board of Directors of the Corporation.

(b) Options and Convertible Securities. The consideration per share received by the Corporation for Additional Shares of Common Stock deemed to have been issued pursuant to Subsection 4.4.3, relating to Options and Convertible Securities, shall be determined by dividing

(i) the total amount, if any, received or receivable by the Corporation as consideration for the issue of such Options or Convertible Securities, plus the

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minimum aggregate amount of additional consideration (as set forth in the instruments relating thereto, without regard to any provision contained therein for a subsequent adjustment of such consideration) payable to the Corporation upon the exercise of such Options or the conversion or exchange of such Convertible Securities, or in the case of Options for Convertible Securities, the exercise of such Options for Convertible Securities and the conversion or exchange of such Convertible Securities, by

- (ii) the maximum number of shares of Common Stock (as set forth in the instruments relating thereto, without regard to any provision contained therein for a subsequent adjustment of such number) issuable upon the exercise of such Options or the conversion or exchange of such Convertible Securities, or in the case of Options for Convertible Securities, the exercise of such Options for Convertible Securities and the conversion or exchange of such Convertible Securities.

4.4.6 Multiple Closing Dates. In the event the Corporation shall issue on more than one date Additional Shares of Common Stock that are a part of one transaction or a series of related transactions and that would result in an adjustment to the Conversion Price applicable to any series of Preferred Stock pursuant to the terms of Subsection 4.4.4 then, upon the final such issuance, the applicable Conversion Price shall be readjusted to give effect to all such issuances as if they occurred on the date of the first such issuance (and without giving effect to any additional adjustments as a result of any such subsequent issuances within such period).

4.5 Adjustment for Stock Splits and Combinations. If the Corporation shall at any time or from time to time after the Series B Original Issue Date effect a subdivision of the outstanding Common Stock, the Conversion Price in effect immediately before that subdivision with respect to each series of Preferred Stock shall be proportionately decreased so that the number of shares of Common Stock issuable on conversion of each share of such series shall be increased in proportion to such increase in the aggregate number of shares of Common Stock outstanding. If the Corporation shall at any time or from time to time after the Series B Original Issue Date combine the outstanding shares of Common Stock, the Conversion Price in effect immediately before the combination with respect to each series of Preferred Stock shall be proportionately increased so that the number of shares of Common Stock issuable on conversion of each share of such series shall be decreased in proportion to such decrease in the aggregate number of shares of Common Stock outstanding. Any adjustment under this subsection shall become effective at the close of business on the date the subdivision or combination becomes effective.

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4.6 Adjustment for Certain Dividends and Distributions. In the event the Corporation at any time or from time to time after the Series B Original Issue Date shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive, a dividend or other distribution payable on the Common Stock in additional shares of Common Stock, then and in each such event the Conversion Price in effect with respect to each series of Preferred Stock immediately before such event shall be decreased as of the time of such issuance or, in the event such a record date shall have been fixed, as of the close of business on such record date, by multiplying the applicable Conversion Price then in effect by a fraction:

- (1) the numerator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date, and
- (2) the denominator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date plus the number of shares of Common Stock issuable in payment of such dividend or distribution.

Notwithstanding the foregoing, (a) if such record date shall have been fixed and such dividend is not fully paid or if such distribution is not fully made on the date fixed therefor, the Conversion Price applicable to each series of Preferred Stock shall be recomputed accordingly as of the close of business on such record date and thereafter the Conversion Price of each series of Preferred Stock shall be adjusted pursuant to this subsection as of the time of actual payment of such dividends or distributions; and (b) that no such adjustment to the Conversion Price applicable to a series of Preferred Stock shall be made if the holders of such series of Preferred Stock simultaneously receive a dividend or other distribution of shares of Common Stock in a number equal to the number of shares of Common Stock as they would have received if all outstanding shares of such series of Preferred Stock had been converted into Common Stock on the date of such event.

4.7 Adjustments for Other Dividends and Distributions. In the event the Corporation at any time or from time to time after the Series B Original Issue Date shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive, a dividend or other distribution payable in securities of the Corporation (other than a distribution of shares of Common Stock in respect of outstanding shares of Common Stock) or in other property and the provisions of Section 1 do not apply to such dividend or distribution, then and in each such event the holders of each series of Preferred Stock shall receive, simultaneously with the distribution to the holders of Common Stock, a dividend or other distribution of such securities or other property in an amount equal to the amount of such securities or other property as they would have received if all outstanding shares of such series of Preferred Stock had been converted into Common Stock on the date of such event.

4.8 Adjustment for Merger or Reorganization, etc. Subject to the provisions of Subsection 2.3, if there shall occur any reorganization, recapitalization, reclassification,

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consolidation or merger involving the Corporation in which the Common Stock (but not the Preferred Stock) is converted into or exchanged for securities, cash or other property (other than a transaction covered by Subsections 4.4, 4.6 or 4.7), then, following any such reorganization, recapitalization, reclassification, consolidation or merger, each share of each series of Preferred Stock shall thereafter be convertible in lieu of the Common Stock into which it was convertible prior to such event into the kind and amount of securities, cash or other property which a holder of the number of shares of Common Stock of the Corporation issuable upon conversion of one share of such series of Preferred Stock immediately prior to such reorganization, recapitalization, reclassification, consolidation or merger would have been entitled to receive pursuant to such transaction; and, in such case, appropriate adjustment (as determined in good faith by the Board of Directors of the Corporation) shall be made in the application of the provisions in this Section 4 with respect to the rights and interests thereafter of the holders of the Preferred Stock, to the end that the provisions set forth in this Section 4 (including provisions with respect to changes in and other adjustments of the Conversion Price applicable to each series of Preferred Stock) shall thereafter be applicable, as nearly as reasonably may be, in relation to any securities or other property thereafter deliverable upon the conversion of the Preferred Stock.

4.9 Certificate as to Adjustments. Upon the occurrence of each adjustment or readjustment of the Conversion Price applicable to a series of Preferred Stock pursuant to this Section 4, the Corporation at its expense shall, as promptly as reasonably practicable but in any event not later than 10 days thereafter, compute such adjustment or readjustment in accordance with the terms hereof and furnish to each holder of such series of Preferred Stock a certificate setting forth such adjustment or readjustment (including the kind and amount of securities, cash or other property into which such series of Preferred Stock is convertible) and showing in detail the facts upon which such adjustment or readjustment is based. The Corporation shall, as promptly as reasonably practicable after the written request at any time of any holder of Preferred Stock (but in any event not later than 10 days thereafter), furnish or cause to be furnished to such holder a certificate setting forth (i) the Conversion Price then in effect for each series of Preferred Stock owned and held by such holder, and (ii) the number of

shares of Common Stock and the amount, if any, of other securities, cash or property which then would be received upon the conversion of each series of Preferred Stock owned and held by such holder.

4.10 Notice of Record Date. In the event:

- (a) the Corporation shall take a record of the holders of its Common Stock (or other capital stock or securities at the time issuable upon conversion of the Preferred Stock) for the purpose of entitling or enabling them to receive any dividend or other distribution, or to receive any right to subscribe for or purchase any shares of capital stock of any class or any other securities, or to receive any other security; or
- (b) of any capital reorganization of the Corporation, any reclassification of the Common Stock of the Corporation, or any Deemed Liquidation Event; or
- (c) of the voluntary or involuntary dissolution, liquidation or winding-up of the Corporation,

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then, and in each such case, the Corporation will send or cause to be sent to the holders of the Preferred Stock a notice specifying, as the case may be, (i) the record date for such dividend, distribution or right, and the amount and character of such dividend, distribution or right, or (ii) the effective date on which such reorganization, reclassification, consolidation, merger, transfer, dissolution, liquidation or winding-up is proposed to take place, and the time, if any is to be fixed, of which the holders of record of Common Stock (or such other capital stock or securities at the time issuable upon the conversion of the Preferred Stock) shall be entitled to exchange their shares of Common Stock (or such other capital stock or securities) for securities or other property deliverable upon such reorganization, reclassification, consolidation, merger, transfer, dissolution, liquidation or winding-up, and the amount per share and character of such exchange applicable to each series of Preferred Stock and the Common Stock. Such notice shall be sent at least 10 days prior to the record date or effective date for the event specified in such notice.

5. Mandatory Conversion.

5.1 Trigger Events. Upon the closing of the sale of shares of Common Stock to the public at a price of at least \$2.00 per share (subject to appropriate adjustment for stock splits, stock dividends, combinations and other similar recapitalizations affecting the number of such shares issued and outstanding), in a firm commitment underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, resulting in at least \$40,000,000 of gross proceeds to the Corporation, (i) all outstanding shares of Preferred Stock shall automatically be converted into shares of Common Stock, at the then effective conversion rate and (ii) such shares may not be reissued by the Corporation (a “**QPO Mandatory Conversion**”). Prior to a QPO Mandatory Conversion, at the election of the Requisite Investors (i) all or any portion of the outstanding shares of each series of Preferred Stock shall automatically be converted into shares of Common Stock, at the then effective conversion rate for such series of Preferred Stock, and (ii) such shares may not be reissued by the Corporation (an “**Elected Mandatory Conversion**”). The date on which the QPO Mandatory Conversion or any Elected Mandatory Conversion occurs shall be referred to as a “**Mandatory Conversion Time**”.

5.2 Procedural Requirements. All holders of record of shares of Preferred Stock shall be sent written notice of the Mandatory Conversion Time and the place designated for mandatory conversion of all such shares of Preferred Stock pursuant to this Section 5. Such notice need not be sent in advance of the occurrence of the Mandatory Conversion Time. Upon receipt of such notice, each holder of shares of Preferred Stock shall surrender his, her or its certificate or certificates for all such shares (or, if such holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate) to the Corporation at the place designated in such notice. If so required by the Corporation, certificates surrendered for conversion shall be endorsed or accompanied by written instrument or instruments of transfer, in form satisfactory to the Corporation, duly executed by the registered holder or by his, her or its attorney duly authorized in writing. All rights with respect to the Preferred Stock converted pursuant to Section 5.1, including the rights, if any, to receive notices and vote (other than as a holder of Common Stock), will terminate at the Mandatory Conversion

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Time (notwithstanding the failure of the holder or holders thereof to surrender the certificates at or prior to such time), except only the rights of the holders thereof, upon surrender of their certificate or certificates (or lost certificate affidavit and agreement) therefor, to receive the items provided for in the next sentence of this Subsection 5.2. As soon as practicable after the Mandatory Conversion Time and the surrender of the certificate or certificates (or lost certificate affidavit and agreement) for Preferred Stock, the Corporation shall issue and deliver to such holder, or to his, her or its nominees, a certificate or certificates for the number of full shares of Common Stock issuable on such conversion in accordance with the provisions hereof, together with cash as provided in Subsection 4.2 in lieu of any fraction of a share of Common Stock otherwise issuable upon such conversion and the payment of any declared but unpaid dividends on the shares of Preferred Stock converted. Such converted Preferred Stock shall be retired and cancelled and may not be reissued as shares of such series, and the Corporation may thereafter take such appropriate action (without the need for stockholder action) as may be necessary to reduce the authorized number of shares of Preferred Stock accordingly.

5A. Special Mandatory Conversion.

5A.1. Trigger Event. In the event that any holder of shares of any series of Preferred Stock does not participate in a Qualified Financing (as defined below) by purchasing in the aggregate, in such Qualified Financing and within the time period specified by the Corporation (provided that the Corporation has sent to each holder of Preferred Stock at least 10 days written notice of, and the opportunity to purchase its Pro Rata Amount (as defined below) of, the Qualified Financing), such holder’s Pro Rata Amount, then the Applicable Portion (as defined below) of the shares of each series of Preferred Stock held by such holder shall automatically, and without any further action on the part of such holder, be converted into shares of Common Stock at the Conversion Price for such series of Preferred Stock held by such holder in effect immediately prior to the consummation of such Qualified Financing, effective upon, subject to, and concurrently with, the consummation of the Qualified Financing. For purposes of determining the number of shares of Preferred Stock owned by a holder, and for determining the number of Offered Securities (as defined below) a holder of Preferred Stock has purchased in a Qualified Financing, all shares of Preferred Stock held by Affiliates (as defined below) of such holder shall be aggregated with such holder’s shares and all Offered Securities purchased by Affiliates of such holder shall be aggregated with the Offered Securities purchased by such holder (provided that no shares or securities shall be attributed to more than one entity or person within any such group of affiliated entities or persons). Such conversion is referred to as a “**Special Mandatory Conversion**.”

5A.2. Procedural Requirements. Upon a Special Mandatory Conversion, each holder of shares of each series of Preferred Stock converted pursuant to Subsection 5A.1 shall be sent written notice of such Special Mandatory Conversion and the place designated for mandatory conversion of all such shares of Preferred Stock pursuant to this Section 5A. Upon receipt of such notice, each holder of such shares of Preferred Stock shall surrender his, her or its

certificate or certificates for all such shares (or, if such holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate) to the Corporation at the place designated in such notice. If so required by the Corporation, certificates

surrendered for conversion shall be endorsed or accompanied by written instrument or instruments of transfer, in form satisfactory to the Corporation, duly executed by the registered holder or by his, her or its attorney duly authorized in writing. All rights with respect to the Preferred Stock converted pursuant to Subsection 5A.1, including the rights, if any, to receive notices and vote (other than as a holder of Common Stock), will terminate at the time of the Special Mandatory Conversion (notwithstanding the failure of the holder or holders thereof to surrender the certificates for such shares at or prior to such time), except only the rights of the holders thereof, upon surrender of their certificate or certificates therefor (or lost certificate affidavit and agreement), to receive the items provided for in the next sentence of this Subsection 5A.2. As soon as practicable after the Special Mandatory Conversion and the surrender of the certificate or certificates (or lost certificate affidavit and agreement) for Preferred Stock so converted, the Corporation shall issue and deliver to such holder, or to his, her or its nominees, a certificate or certificates for the number of full shares of Common Stock issuable on such conversion in accordance with the provisions hereof, together with cash as provided in Subsection 4.2 in lieu of any fraction of a share of Common Stock otherwise issuable upon such conversion and the payment of any declared but unpaid dividends on the shares of Preferred Stock converted and a new certificate for the number of shares, if any, of Preferred Stock represented by such surrendered certificate and not converted pursuant to Subsection 5A.1. Such converted shares of Preferred Stock shall be retired and cancelled and may not be reissued as shares of such series, and the Corporation may thereafter take such appropriate action (without the need for stockholder action) as may be necessary to reduce the authorized number of shares of Preferred Stock accordingly.

5A.3. Definitions. For purposes of this Section 5A, the following definitions shall apply:

5A.3.1 “**Affiliate**” shall mean, with respect to any holder of shares of Preferred Stock, any person, entity or firm which, directly or indirectly, controls, is controlled by or is under common control with such holder, including, without limitation, any entity of which the holder is a partner or member, any partner, officer, director, member or employee of such holder and any venture capital fund now or hereafter existing of which the holder is a partner or member which is controlled by or under common control with one or more general partners of such holder or shares the same management company with such holder.

5A.3.2 “**Applicable Portion**” shall mean, with respect to any holder of shares of any series of Preferred Stock, a number of shares of Preferred Stock calculated by multiplying the aggregate number of shares of Preferred Stock held by such holder immediately prior to a Qualified Financing by a fraction, the numerator of which is equal to the amount, if positive, by which such holder’s Pro Rata Amount exceeds the number of Offered Securities actually purchased by such holder in such Qualified Financing, and the denominator of which is equal to such holder’s Pro Rata Amount. If any holder of Preferred Stock holds more than one series of Preferred Stock, the Applicable Portion for such holder shall be allocated ratably among the series of Preferred Stock held by such holder.

5A.3.3 “**Offered Securities**” shall mean the equity securities of the Corporation set aside by the Board of Directors of the Corporation for purchase by holders of

outstanding shares of Preferred Stock in connection with a Qualified Financing, and offered to such holders.

5A.3.4 “**Pro Rata Amount**” shall mean, with respect to any holder of any series of Preferred Stock, the lesser of (a) a number of Offered Securities calculated by multiplying the aggregate number of Offered Securities by a fraction, the numerator of which is equal to the number of shares of outstanding Common Stock owned by such holder, and the denominator of which is equal to the aggregate number of outstanding shares of Common Stock (for the purpose of this definition, treating all shares of Common Stock issuable upon exercise of Options outstanding immediately prior to such Qualified Financing or upon conversion of Convertible Securities outstanding (assuming exercise of any outstanding Options therefor) immediately prior to such Qualified Financing as outstanding), or (b) the maximum number of Offered Securities that such holder is permitted by the Corporation to purchase in such Qualified Financing, after giving effect to any cutbacks or limitations established by the Board of Directors and applied on a pro rata basis to all holders of Preferred Stock.

5A.3.5 “**Qualified Financing**” shall mean any transaction involving the issuance or sale of Additional Shares of Common Stock after the Series B Original Issue Date where the price per share of the Offered Securities is less than the Series B Conversion Price in effect immediately prior to the consummation of the Qualified Financing, unless the holders of a majority of the Preferred Stock, voting or consenting (as the case may be) as a single class on an as-converted to Common Stock basis, elect, by written notice sent to the Corporation at least 10 days prior to the consummation of the Qualified Financing, that such transaction not be treated as a Qualified Financing for purposes of this Section 5A.

6. Redeemed or Otherwise Acquired Shares. Any shares of any series of Preferred Stock that are redeemed or otherwise acquired by the Corporation or any of its subsidiaries shall be automatically and immediately cancelled and retired and shall not be reissued, sold or transferred. Neither the Corporation nor any of its subsidiaries may exercise any voting or other rights granted to the holders of Preferred Stock following redemption.

7. Waiver. Except as otherwise provided in this Certificate of Incorporation or required by law, (a) any of the rights, powers, preferences and other terms of the Series A Preferred Stock set forth herein may be waived on behalf of all holders of the Series A Preferred Stock by the affirmative written consent or vote of the holders of at least sixty-two percent (62%) of the then outstanding shares of Series A Preferred Stock; and (b) any of the rights, powers, preferences and other terms of the Series B Preferred Stock set forth herein may be waived on behalf of all holders of the Series B Preferred Stock by the affirmative written consent or vote of the holders of at least sixty percent (60%) of the then outstanding shares of Series B Preferred Stock.

8. Notices. Any notice required or permitted by the provisions of this Article Fourth to be given to a holder of shares of Preferred Stock shall be mailed, postage prepaid, to the post office address last shown on the records of the Corporation, or given by electronic communication in compliance with the provisions of the General Corporation Law, and shall be deemed sent upon such mailing or electronic transmission.

**FIFTH:** Subject to any additional vote required by the Certificate of Incorporation or Bylaws, in furtherance and not in limitation of the powers conferred by statute, the Board of Directors is expressly authorized to make, repeal, alter, amend and rescind any or all of the Bylaws of the Corporation.

**SIXTH:** Subject to any additional vote required by the Certificate of Incorporation, the number of directors of the Corporation shall be determined in the manner set forth in the Bylaws of the Corporation.

**SEVENTH:** Elections of directors need not be by written ballot unless the Bylaws of the Corporation shall so provide.

**EIGHTH:** Meetings of stockholders may be held within or without the State of Delaware, as the Bylaws of the Corporation may provide. The books of the Corporation may be kept outside the State of Delaware at such place or places as may be designated from time to time by the Board of Directors or in the Bylaws of the Corporation.

**NINTH:** To the fullest extent permitted by law, a director of the Corporation shall not be personally liable to the Corporation or its stockholders for monetary damages for breach of fiduciary duty as a director. If the General Corporation Law or any other law of the State of Delaware is amended after approval by the stockholders of this Article Ninth to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of a director of the Corporation shall be eliminated or limited to the fullest extent permitted by the General Corporation Law as so amended.

Any repeal or modification of the foregoing provisions of this Article Ninth by the stockholders of the Corporation shall not adversely affect any right or protection of a director of the Corporation existing at the time of, or increase the liability of any director of the Corporation with respect to any acts or omissions of such director occurring prior to, such repeal or modification.

**TENTH:** To the fullest extent permitted by applicable law, the Corporation is authorized to provide indemnification of (and advancement of expenses to) directors, officers and agents of the Corporation (and any other persons to which General Corporation Law permits the Corporation to provide indemnification) through Bylaw provisions, agreements with such agents or other persons, vote of stockholders or disinterested directors or otherwise, in excess of the indemnification and advancement otherwise permitted by Section 145 of the General Corporation Law.

Any amendment, repeal or modification of the foregoing provisions of this Article Tenth shall not adversely affect any right or protection of any director, officer or other agent of the Corporation existing at the time of such amendment, repeal or modification.

**ELEVENTH:** The Corporation renounces any interest or expectancy of the Corporation in, or in being offered an opportunity to participate in, any Excluded Opportunity. An **“Excluded Opportunity”** is any matter, transaction or interest that is presented to, or acquired, created or developed by, or which otherwise comes into the possession of, (i) any director of the Corporation who is not an employee of the Corporation or any of its subsidiaries,

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or (ii) any holder of Preferred Stock or any partner, member, director, stockholder, employee or agent of any such holder, other than someone who is an employee of the Corporation or any of its subsidiaries (collectively, **“Covered Persons”**), unless such matter, transaction or interest is presented to, or acquired, created or developed by, or otherwise comes into the possession of, a Covered Person expressly and solely in such Covered Person’s capacity as a director of the Corporation.

**TWELFTH:** Unless the Corporation consents in writing to the selection of an alternative forum, the Court of Chancery in the State of Delaware shall be the sole and exclusive forum for any stockholder (including a beneficial owner) to bring (i) any derivative action or proceeding brought on behalf of the Corporation, (ii) any action asserting a claim of breach of fiduciary duty owed by any director, officer or other employee of the Corporation to the Corporation or the Corporation’s stockholders, (iii) any action asserting a claim against the Corporation, its directors, officers or employees arising pursuant to any provision of the Delaware General Corporation Law or the Corporation’s certificate of incorporation or bylaws, or (iv) any action asserting a claim against the Corporation, its directors, officers or employees governed by the internal affairs doctrine, except for, as to each of (i) through (iv) above, any claim as to which the Court of Chancery determines that there is an indispensable party not subject to the jurisdiction of the Court of Chancery (and the indispensable party does not consent to the personal jurisdiction of the Court of Chancery within ten days following such determination), which is vested in the exclusive jurisdiction of a court or forum other than the Court of Chancery, or for which the Court of Chancery does not have subject matter jurisdiction. If any provision or provisions of this Article Twelfth shall be held to be invalid, illegal or unenforceable as applied to any person or entity or circumstance for any reason whatsoever, then, to the fullest extent permitted by law, the validity, legality and enforceability of such provisions in any other circumstance and of the remaining provisions of this Article Twelfth (including, without limitation, each portion of any sentence of this Article Twelfth containing any such provision held to be invalid, illegal or unenforceable that is not itself held to be invalid, illegal or unenforceable) and the application of such provision to other persons or entities and circumstances shall not in any way be affected or impaired thereby.

\* \* \*

3. That the foregoing amendment and restatement was approved by the holders of the requisite number of shares of this corporation in accordance with Section 228 of the General Corporation Law.

4. That this Amended and Restated Certificate of Incorporation, which restates and integrates and further amends the provisions of this corporation’s Certificate of Incorporation, has been duly adopted in accordance with Sections 242 and 245 of the General Corporation Law.

**[REMAINDER OF PAGE BLANK]**

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**IN WITNESS WHEREOF,** this Amended and Restated Certificate of Incorporation has been executed by a duly authorized officer of this corporation on this 23rd day of July, 2014.

By: /s/ Christoph Westphal  
Name: Christoph Westphal  
Title: President

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**CERTIFICATE OF AMENDMENT  
OF  
AMENDED AND RESTATED CERTIFICATE OF INCORPORATION  
OF  
FLEX PHARMA, INC.**

(Pursuant to Section 242 of the General Corporation Law  
of the State of Delaware)

The undersigned officer of Flex Pharma, Inc., a corporation organized and existing under and by virtue of the provision of the General Corporation Law of the State of Delaware,

**DOES HEREBY CERTIFY:**

1. That the name of this corporation is **FLEX PHARMA, INC.**, and that this corporation was originally incorporated pursuant to the General Corporation Law on February 26, 2014, under the name **FLEX PHARMA, INC.**, and an Amended and Restated Certificate of Incorporation was filed on March 20, 2014, and an Amended and Restated Certificate of Incorporation was filed on April 10, 2014 and an Amended and Restated Certificate of Incorporation was filed on July 23, 2014 (the "**Amended and Restated Certificate of Incorporation**").

2. That the first paragraph of Article FOURTH of the Amended and Restated Certificate of Incorporation is hereby restated in its entirety to read as follows:

**"FOURTH:** The total number of shares of all classes of stock which the Corporation shall have authority to issue is (i) 56,000,000 shares of Common Stock, \$0.0001 par value per share ("**Common Stock**"), and (ii) 29,500,000 shares of Preferred Stock, \$0.0001 par value per share ("**Preferred Stock**")."

3. That the first paragraph of Part B of Article FOURTH of the Amended and Restated Certificate of Incorporation is hereby restated in its entirety as follows:

"Sixteen million (16,000,000) shares of the authorized Preferred Stock of the Corporation are hereby designated "**Series A Preferred Stock**" and 13,500,000 shares of the authorized Preferred Stock of the Corporation are hereby designated "**Series B Preferred Stock**," each with the following rights, preferences, powers, privileges and restrictions, qualifications and limitations. Unless otherwise indicated, references to "Sections" or "Subsections" in this Part B of this Article Fourth refer to sections and subsections of Part B of this Article Fourth."

4. That the foregoing amendment to the Amended and Restated Certificate of Incorporation herein certified has been duly adopted in accordance with the provisions of Sections 228 and 242 of the General Corporation Law of the State of Delaware.

**IN WITNESS WHEREOF**, the Corporation has caused this Certificate to be signed by a duly authorized office of this corporation on this 9th day of September, 2014.

By: /s/ Christoph Westphal  
Name: Christoph Westphal  
Title: President

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**CERTIFICATE OF AMENDMENT  
OF  
AMENDED AND RESTATED CERTIFICATE OF INCORPORATION  
OF  
FLEX PHARMA, INC.**

(Pursuant to Section 242 of the General Corporation Law  
of the State of Delaware)

The undersigned officer of Flex Pharma, Inc., a corporation organized and existing under and by virtue of the provision of the General Corporation Law of the State of Delaware,

**DOES HEREBY CERTIFY:**

1. That the name of this corporation is **FLEX PHARMA, INC.**, and that this corporation was originally incorporated pursuant to the General Corporation Law on February 26, 2014, under the name **FLEX PHARMA, INC.**, and an Amended and Restated Certificate of Incorporation was filed on March 20, 2014, and an Amended and Restated Certificate of Incorporation was filed on April 10, 2014, an Amended and Restated Certificate of Incorporation was filed on July 23, 2014 (the "**Amended and Restated Certificate of Incorporation**") and a Certificate of Amendment to Amended and Restated Certificate of Incorporation was filed on September 9, 2014.

2. That the first paragraph of Article FOURTH of the Amended and Restated Certificate of Incorporation, as amended, is hereby restated in its entirety to read as follows:

**"FOURTH:** The total number of shares of all classes of stock which the Corporation shall have authority to issue is (i) 60,000,000 shares of Common Stock, \$0.0001 par value per share ("**Common Stock**"), and (ii) 29,500,000 shares of Preferred Stock, \$0.0001 par value per share ("**Preferred Stock**")."

3. Clause (i) of subsection 3.3 of Part B of Article FOURTH of the Amended and Restated Certificate of Incorporation, as amended, is hereby restated in its entirety as follows:

"(i) increase the number of shares of Common Stock reserved for issuance under the Corporation's 2014 Equity Incentive Plan beyond 8,865,635 or create any new equity incentive plan;"

4. That the foregoing amendment to the Amended and Restated Certificate of Incorporation herein certified has been duly adopted in accordance with the provisions of Sections 228 and 242 of the General Corporation Law of the State of Delaware.

**IN WITNESS WHEREOF**, the Corporation has caused this Certificate to be signed by a duly authorized office of this corporation on this 23rd day of September, 2014.

By: /s/ Christoph Westphal  
Name: Christoph Westphal  
Title: President

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**CERTIFICATE OF AMENDMENT  
OF  
AMENDED AND RESTATED CERTIFICATE OF INCORPORATION  
OF  
FLEX PHARMA, INC.**

(Pursuant to Section 242 of the General Corporation Law  
of the State of Delaware)

The undersigned officer of Flex Pharma, Inc., a corporation organized and existing under and by virtue of the provision of the General Corporation Law of the State of Delaware,

**DOES HEREBY CERTIFY:**

1. That the name of this corporation is **FLEX PHARMA, INC.**, and that this corporation was originally incorporated pursuant to the General Corporation Law on February 26, 2014, under the name **FLEX PHARMA, INC.**, and an Amended and Restated Certificate of Incorporation was filed on March 20, 2014, and an Amended and Restated Certificate of Incorporation was filed on April 10, 2014, an Amended and Restated Certificate of Incorporation was filed on July 23, 2014 (the "**Amended and Restated Certificate of Incorporation**"), a Certificate of Amendment to Amended and Restated Certificate of Incorporation was filed on September 9, 2014, and a Certificate of Amendment to Amended and Restated Certificate of Incorporation was filed on September 23, 2014.

2. That the first paragraph of Article FOURTH of the Amended and Restated Certificate of Incorporation, as amended, is hereby restated in its entirety to read as follows:

"**FOURTH:** The total number of shares of all classes of stock which the Corporation shall have authority to issue is (i) 61,000,000 shares of Common Stock, \$0.0001 par value per share ("**Common Stock**"), and (ii) 30,500,000 shares of Preferred Stock, \$0.0001 par value per share ("**Preferred Stock**")."

3. That the first paragraph of Part B of Article FOURTH of the Amended and Restated Certificate of Incorporation, as amended, is hereby restated in its entirety as follows:

"Sixteen million (16,000,000) shares of the authorized Preferred Stock of the Corporation are hereby designated "**Series A Preferred Stock**" and 14,500,000 shares of the authorized Preferred Stock of the Corporation are hereby designated "**Series B Preferred Stock**," each with the following rights, preferences, powers, privileges and restrictions, qualifications and limitations. Unless otherwise indicated, references to "Sections" or "Subsections" in this Part B of this Article Fourth refer to sections and subsections of Part B of this Article Fourth."

4. That the foregoing amendment to the Amended and Restated Certificate of Incorporation herein certified has been duly adopted in accordance with the provisions of Sections 228 and 242 of the General Corporation Law of the State of Delaware.

**IN WITNESS WHEREOF**, the Corporation has caused this Certificate to be signed by a duly authorized office of this corporation on this 10th day of October, 2014.

By: /s/ Christoph Westphal

Name: Christoph Westphal

Title: President

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**BYLAWS**  
**OF**  
**FLEX PHARMA, INC.**  
**(A DELAWARE CORPORATION)**

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**BYLAWS**  
**OF**  
**FLEX PHARMA, INC.**  
**(A DELAWARE CORPORATION)**

**ARTICLE I**  
**OFFICES**

**Section 1. Registered Office.** The registered office of the corporation in the State of Delaware shall be in the City of Wilmington, County of New Castle.

**Section 2. Other Offices.** The corporation shall also have and maintain an office or principal place of business at such place as may be fixed by the Board of Directors, and may also have offices at such other places, both within and without the State of Delaware, as the Board of Directors may from time to time determine or the business of the corporation may require.

**ARTICLE II**

**CORPORATE SEAL**

**Section 3. Corporate Seal.** The Board of Directors may adopt a corporate seal. The corporate seal shall consist of a die bearing the name of the corporation and the inscription, "Corporate Seal-Delaware." Said seal may be used by causing it or a facsimile thereof to be impressed or affixed or reproduced or otherwise.

**ARTICLE III**

**STOCKHOLDERS' MEETINGS**

**Section 4. Place of Meetings.** Meetings of the stockholders of the corporation may be held at such place, either within or without the State of Delaware, as may be determined from time to time by the Board of Directors. The Board of Directors may, in its sole discretion, determine that the meeting shall not be held at any place, but may instead be held solely by means of remote communication as provided under the Delaware General Corporation Law ("DGCL").

**Section 5. Annual Meeting.**

(a) The annual meeting of the stockholders of the corporation, for the purpose of election of directors and for such other business as may lawfully come before it, shall be held on such date and at such time as may be designated from time to time by the Board of Directors. Nominations of persons for election to the Board of Directors of the corporation and the proposal of business to be considered by the stockholders may be made at an annual meeting of stockholders: (i) pursuant to the corporation's notice of meeting of stockholders; (ii) by or at the direction of the Board of Directors; or (iii) by any stockholder of the corporation who was a stockholder of record at the time of giving of notice provided for in the following paragraph, who is entitled to vote at the meeting and who complied with the notice procedures set forth in Section 5.

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(b) At an annual meeting of the stockholders, only such business shall be conducted as shall have been properly brought before the meeting. For nominations or other business to be properly brought before an annual meeting by a stockholder pursuant to clause (iii) of Section 5(a) of these Bylaws, (i) the stockholder must have given timely notice thereof in writing to the Secretary of the corporation, (ii) such other business must be a proper matter for stockholder action under the DGCL, (iii) if the stockholder, or the beneficial owner on whose behalf any such proposal or nomination is made, has provided the corporation with a Solicitation Notice (as defined in this Section 5(b)), such stockholder or beneficial owner must, in the case of a proposal, have delivered a proxy statement and form of proxy to holders of at least the percentage of the corporation's voting shares required under applicable law to carry any such proposal, or, in the case of a nomination or nominations, have delivered a proxy statement and form of proxy to holders of a percentage of the corporation's voting shares reasonably believed by such stockholder or beneficial owner to be sufficient to elect the nominee or nominees proposed to be nominated by such stockholder, and must, in either case, have included in such materials the Solicitation Notice, and (iv) if no Solicitation Notice relating thereto has been timely provided pursuant to this section, the stockholder or beneficial owner proposing such business or nomination must not have solicited a number of proxies sufficient to have required the delivery of such a Solicitation Notice under this Section 5. To be timely, a stockholder's notice shall be delivered to the Secretary at the principal executive offices of the corporation not later than the close of business on the 90<sup>th</sup> day nor earlier than the close of business on the 120<sup>th</sup> day prior to the first anniversary of the preceding year's annual meeting; provided, however, that in the event that the date of the annual meeting is advanced more than 30 days prior to or delayed by more than 30 days after the anniversary of the preceding year's annual meeting, notice by the stockholder to be timely must be so delivered not earlier than the close of business on the 120<sup>th</sup> day prior to such annual meeting and not later than the close of business on the later of the 90<sup>th</sup> day prior to such annual meeting or the tenth day following the day on which public announcement of the date of such meeting is first made. In no event shall the public announcement of an adjournment of an annual meeting commence a new time period for the giving of a stockholder's notice as described above. Such

stockholder's notice shall set forth: (A) as to each person whom the stockholder proposed to nominate for election or reelection as a director all information relating to such person that is required to be disclosed in solicitations of proxies for election of directors in an election contest, or is otherwise required, in each case pursuant to Regulation 14A under the Securities Exchange Act of 1934, as amended (the "1934 Act") and Rule 14a-4(d) thereunder (including such person's written consent to being named in the proxy statement as a nominee and to serving as a director if elected); (B) as to any other business that the stockholder proposes to bring before the meeting, a brief description of the business desired to be brought before the meeting, the reasons for conducting such business at the meeting and any material interest in such business of such stockholder and the beneficial owner, if any, on whose behalf the proposal is made; and (C) as to the stockholder giving the notice and the beneficial owner, if any, on whose behalf the nomination or proposal is made (i) the name and address of such stockholder, as they appear on the corporation's books, and of such beneficial owner, (ii) the class and number of shares of the corporation which are owned beneficially and of record by such stockholder and such beneficial owner, and (iii) whether either such stockholder or beneficial owner intends to deliver a proxy statement and form of proxy to holders of, in the case of the proposal, at least the percentage of the corporation's voting shares required under applicable law to carry the proposal or, in the case of a nomination or nominations, a sufficient number of holders of the corporation's voting shares to elect such nominee or nominees (an affirmative statement of such intent, a "Solicitation Notice").

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(c) Notwithstanding anything in the second sentence of Section 5(b) of these Bylaws to the contrary, in the event that the number of directors to be elected to the Board of Directors of the corporation is increased and there is no public announcement naming all of the nominees for director or specifying the size of the increased Board of Directors made by the corporation at least 100 days prior to the first anniversary of the preceding year's annual meeting, a stockholder's notice required by this Section 5 shall also be considered timely, but only with respect to nominees for any new positions created by such increase, if it shall be delivered to the Secretary at the principal executive offices of the corporation not later than the close of business on the tenth day following the day on which such public announcement is first made by the corporation.

(d) Only such persons who are nominated in accordance with the procedures set forth in this Section 5 shall be eligible to serve as directors and only such business shall be conducted at a meeting of stockholders as shall have been brought before the meeting in accordance with the procedures set forth in this Section 5. Except as otherwise provided by law, the Chairman of the meeting shall have the power and duty to determine whether a nomination or any business proposed to be brought before the meeting was made, or proposed, as the case may be, in accordance with the procedures set forth in these Bylaws and, if any proposed nomination or business is not in compliance with these Bylaws, to declare that such defective proposal or nomination shall not be presented for stockholder action at the meeting and shall be disregarded.

(e) Notwithstanding the foregoing provisions of this Section 5, in order to include information with respect to a stockholder proposal in the proxy statement and form of proxy for a stockholders' meeting, stockholders must provide notice as required by the regulations promulgated under the 1934 Act. Nothing in these Bylaws shall be deemed to affect any rights of stockholders to request inclusion of proposals in the corporation proxy statement pursuant to Rule 14a-8 under the 1934 Act.

(f) For purposes of this Section 5, "public announcement" shall mean disclosure in a press release reported by the Dow Jones News Service, Associated Press or comparable national news service or in a document publicly filed by the corporation with the Securities and Exchange Commission pursuant to Section 13, 14 or 15(d) of the 1934 Act.

#### **Section 6. Special Meetings.**

(a) Special meetings of the stockholders of the corporation may be called, for any purpose or purposes, by (i) the Chairman of the Board of Directors, (ii) the Chief Executive Officer, (iii) the Board of Directors pursuant to a resolution adopted by a majority of the total number of authorized directors (whether or not there exist any vacancies in previously authorized directorships at the time any such resolution is presented to the Board of Directors for adoption) or (iv) by the holders of shares entitled to cast not less than 10% of the votes at the meeting, and shall be held at such place, on such date, and at such time as the Board of Directors shall fix.

(b) If a special meeting is properly called by any person or persons other than the Board of Directors, the request shall be in writing, specifying the general nature of the business proposed to be transacted, and shall be delivered personally or sent by certified or registered mail, return receipt requested, or by telegraphic or other facsimile transmission to the Chairman of the Board of Directors, the Chief Executive Officer, or the Secretary of the corporation. No business may be transacted at such special meeting otherwise than specified

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in such notice. The Board of Directors shall determine the time and place of such special meeting, which shall be held not less than 35 nor more than 120 days after the date of the receipt of the request. Upon determination of the time and place of the meeting, the officer receiving the request shall cause notice to be given to the stockholders entitled to vote, in accordance with the provisions of Section 7 of these Bylaws. Nothing contained in this paragraph (b) shall be construed as limiting, fixing, or affecting the time when a meeting of stockholders called by action of the Board of Directors may be held.

**Section 7. Notice of Meetings.** Except as otherwise provided by law, notice, given in writing or by electronic transmission, of each meeting of stockholders shall be given not less than ten nor more than 60 days before the date of the meeting to each stockholder entitled to vote at such meeting, such notice to specify the place, if any, date and hour, in the case of special meetings, the purpose or purposes of the meeting, and the means of remote communications, if any, by which stockholders and proxyholders may be deemed to be present in person and vote at any such meeting. If mailed, notice is given when deposited in the United States mail, postage prepaid, directed to the stockholder at such stockholder's address as it appears on the records of the corporation. Notice of the time, place, if any, and purpose of any meeting of stockholders may be waived in writing, signed by the person entitled to notice thereof or by electronic transmission by such person, either before or after such meeting, and will be waived by any stockholder by his attendance thereat in person, by remote communication, if applicable, or by proxy, except when the stockholder attends a meeting for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened. Any stockholder so waiving notice of such meeting shall be bound by the proceedings of any such meeting in all respects as if due notice thereof had been given.

**Section 8. Quorum.** At all meetings of stockholders, except where otherwise provided by statute or by the Certificate of Incorporation, or by these Bylaws, the presence, in person, by remote communication, if applicable, or by proxy duly authorized, of the holders of a majority of the outstanding shares of stock entitled to vote shall constitute a quorum for the transaction of business. In the absence of a quorum, any meeting of stockholders may be adjourned, from time to time, either by the chairman of the meeting or by vote of the holders of a majority of the shares represented thereat, but no other business shall be transacted at such

meeting. The stockholders present at a duly called or convened meeting, at which a quorum is present, may continue to transact business until adjournment, notwithstanding the withdrawal of enough stockholders to leave less than a quorum. Except as otherwise provided by statute, or by the Certificate of Incorporation or these Bylaws, in all matters other than the election of directors, the affirmative vote of a majority of shares present in person, by remote communication, if applicable, or represented by proxy duly authorized at the meeting and entitled to vote generally on the subject matter shall be the act of the stockholders. Except as otherwise provided by statute, the Certificate of Incorporation or these Bylaws, directors shall be elected by a plurality of the votes of the shares present in person, by remote communication, if applicable, or represented by proxy duly authorized at the meeting and entitled to vote generally on the election of directors. Where a separate vote by a class or classes or series is required, except where otherwise provided by the statute or by the Certificate of Incorporation or these Bylaws, a majority of the outstanding shares of such class or classes or series, present in person, by remote communication, if applicable, or represented by proxy duly authorized, shall constitute a quorum entitled to take action with respect to that vote on that matter. Except where otherwise provided by statute or by the Certificate of Incorporation or these Bylaws, the affirmative vote of the majority (plurality, in the case of the election of directors) of shares of such class or classes or series present in person, by remote communication, if applicable, or represented by proxy at the meeting shall be the act of such class or classes or series.

**Section 9. Adjournment and Notice of Adjourned Meetings.** Any meeting of stockholders, whether annual or special, may be adjourned from time to time either by the chairman of the

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meeting or by the vote of a majority of the shares present in person, by remote communication, if applicable, or represented by proxy. When a meeting is adjourned to another time or place, if any, notice need not be given of the adjourned meeting if the time and place, if any, thereof are announced at the meeting at which the adjournment is taken. At the adjourned meeting, the corporation may transact any business which might have been transacted at the original meeting. If the adjournment is for more than 30 days or if after the adjournment a new record date is fixed for the adjourned meeting, a notice of the adjourned meeting shall be given to each stockholder of record entitled to vote at the meeting.

**Section 10. Voting Rights.** For the purpose of determining those stockholders entitled to vote at any meeting of the stockholders, except as otherwise provided by law, only persons in whose names shares stand on the stock records of the corporation on the record date, as provided in Section 12 of these Bylaws, shall be entitled to vote at any meeting of stockholders. Every person entitled to vote or execute consents shall have the right to do so either in person, by remote communication, if applicable, or by an agent or agents authorized by a proxy granted in accordance with Delaware law. An agent so appointed need not be a stockholder. No proxy shall be voted after three years from its date of creation unless the proxy provides for a longer period.

**Section 11. Joint Owners of Stock.** If shares or other securities having voting power stand of record in the names of two or more persons, whether fiduciaries, members of a partnership, joint tenants, tenants in common, tenants by the entirety, or otherwise, or if two or more persons have the same fiduciary relationship respecting the same shares, unless the Secretary is given written notice to the contrary and is furnished with a copy of the instrument or order appointing them or creating the relationship wherein it is so provided, their acts with respect to voting shall have the following effect: (a) if only one votes, his act binds all; (b) if more than one votes, the act of the majority so voting binds all; (c) if more than one votes, but the vote is evenly split on any particular matter, each faction may vote the securities in question proportionally, or may apply to the Delaware Court of Chancery for relief as provided in the DGCL, Section 217(b). If the instrument filed with the Secretary shows that any such tenancy is held in unequal interests, a majority or even-split for the purpose of subsection (c) shall be a majority or even-split in interest.

**Section 12. List of Stockholders.** The Secretary shall prepare and make, at least ten days before every meeting of stockholders, a complete list of the stockholders entitled to vote at said meeting, arranged in alphabetical order, showing the address of each stockholder and the number of shares registered in the name of each stockholder. Such list shall be open to the examination of any stockholder, for any purpose germane to the meeting, on a reasonably accessible electronic network, provided that the information required to gain access to such list is provided with the notice of the meeting, or during ordinary business hours, at the principal place of business of the corporation. In the event that the corporation determines to make the list available on an electronic network, the corporation may take reasonable steps to ensure that such information is available only to stockholders of the corporation. The list shall be open to examination of any stockholder during the time of the meeting as provided by law.

**Section 13. Action Without Meeting.**

(a) Unless otherwise provided in the Certificate of Incorporation, any action required by statute to be taken at any annual or special meeting of the stockholders, or any action which may be taken at any annual or special meeting of the stockholders, may be taken without a meeting, without prior notice and without a vote, if a consent in writing, or by electronic transmission setting forth the action so taken, shall be signed by the holders of outstanding stock having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote thereon were present and voted.

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(b) Every written consent or electronic transmission shall bear the date of signature of each stockholder who signs the consent, and no written consent or electronic transmission shall be effective to take the corporate action referred to therein unless, within 60 days of the earliest dated consent delivered to the corporation in the manner herein required, written consents or electronic transmissions signed by a sufficient number of stockholders to take action are delivered to the corporation by delivery to its registered office in the State of Delaware, its principal place of business or an officer or agent of the corporation having custody of the book in which proceedings of meetings of stockholders are recorded. Delivery made to a corporation's registered office shall be by hand or by certified or registered mail, return receipt requested.

(c) Prompt notice of the taking of the corporate action without a meeting by less than unanimous written consent shall be given to those stockholders who have not consented in writing or by electronic transmission and who, if the action had been taken at a meeting, would have been entitled to notice of the meeting if the record date for such meeting had been the date that written consents signed by a sufficient number of stockholders to take action were delivered to the corporation as provided in Section 228(c) of the DGCL. If the action which is consented to is such as would have required the filing of a certificate under any section of the DGCL if such action had been voted on by stockholders at a meeting thereof, then the certificate filed under such section shall state, in lieu of any statement required by such section concerning any vote of stockholders, that written consent has been given in accordance with Section 228 of the DGCL.

(d) A telegram, cablegram or other electronic transmission consenting to an action to be taken and transmitted by a stockholder or proxyholder, shall be deemed to be written, signed and dated for the purposes of this section, provided that any such telegram, cablegram or other electronic transmission sets forth or is delivered with information from which the corporation can determine (i) that the telegram, cablegram or other electronic transmission was transmitted by the stockholder or proxyholder or by a person or persons authorized to act for the stockholder and (ii) the

date on which such stockholder or proxyholder or authorized person or persons transmitted such telegram, cablegram or electronic transmission. The date on which such telegram, cablegram or electronic transmission is transmitted shall be deemed to be the date on which such consent was signed. No consent given by telegram, cablegram or other electronic transmission shall be deemed to have been delivered until such consent is reproduced in paper form and until such paper form shall be delivered to the corporation by delivery to its registered office in the state of Delaware, its principal place of business or an officer or agent of the corporation having custody of the book in which proceedings of meetings of stockholders are recorded. Delivery made to a corporation's registered office shall be made by hand or by certified or registered mail, return receipt requested. Notwithstanding the foregoing limitations on delivery, consents given by telegram, cablegram or other electronic transmission may be otherwise delivered to the principal place of business of the corporation or to an officer or agent of the corporation having custody of the book in which proceedings of meetings of stockholders are recorded if, to the extent and in the manner provided by resolution of the board of directors of the corporation. Any copy, facsimile or other reliable reproduction of a consent in writing may be substituted or used in lieu of the original writing for any and all purposes for which the original writing could be used, provided that such copy, facsimile or other reproduction shall be a complete reproduction of the entire original writing.

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**Section 14. Organization.**

(a) At every meeting of stockholders, the Chairman of the Board of Directors, or, if a Chairman has not been appointed or is absent, the President, or, if the President is absent, a chairman of the meeting chosen by a majority in interest of the stockholders entitled to vote, present in person or by proxy, shall act as chairman. The Secretary, or, in his absence, an Assistant Secretary directed to do so by the President, shall act as secretary of the meeting.

(b) The Board of Directors of the corporation shall be entitled to make such rules or regulations for the conduct of meetings of stockholders as it shall deem necessary, appropriate or convenient. Subject to such rules and regulations of the Board of Directors, if any, the chairman of the meeting shall have the right and authority to prescribe such rules, regulations and procedures and to do all such acts as, in the judgment of such chairman, are necessary, appropriate or convenient for the proper conduct of the meeting, including, without limitation, establishing an agenda or order of business for the meeting, rules and procedures for maintaining order at the meeting and the safety of those present, limitations on participation in such meeting to stockholders of record of the corporation and their duly authorized and constituted proxies and such other persons as the chairman shall permit, restrictions on entry to the meeting after the time fixed for the commencement thereof, limitations on the time allotted to questions or comments by participants and regulation of the opening and closing of the polls for balloting on matters which are to be voted on by ballot. The date and time of the opening and closing of the polls for each matter upon which the stockholders will vote at the meeting shall be announced at the meeting. Unless and to the extent determined by the Board of Directors or the chairman of the meeting, meetings of stockholders shall not be required to be held in accordance with rules of parliamentary procedure.

**ARTICLE IV**

**DIRECTORS**

**Section 15. Number and Term of Office.** The authorized number of directors of the corporation shall be fixed by the Board of Directors from time to time.

Directors need not be stockholders unless so required by the Certificate of Incorporation. If for any cause, the directors shall not have been elected at an annual meeting, they may be elected as soon thereafter as convenient.

**Section 16. Powers.** The business and affairs of the corporation shall be managed by or under the direction of the Board of Directors, except as may be otherwise provided by statute or by the Certificate of Incorporation.

**Section 17. Term of Directors.**

(a) Subject to the rights of the holders of any series of Preferred Stock to elect additional directors under specified circumstances, directors shall be elected at each annual meeting of stockholders to serve until the next annual meeting of stockholders and his successor is duly elected and qualified or until his death, resignation or removal. No decrease in the number of directors constituting the Board of Directors shall shorten the term of any incumbent director.

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**Section 18. Vacancies.**

(a) Unless otherwise provided in the Certificate of Incorporation, and subject to the rights of the holders of any series of Preferred Stock, any vacancies on the Board of Directors resulting from death, resignation, disqualification, removal or other causes and any newly created directorships resulting from any increase in the number of directors shall, unless the Board of Directors determines by resolution that any such vacancies or newly created directorships shall be filled by stockholders, be filled only by the affirmative vote of a majority of the directors then in office, even though less than a quorum of the Board of Directors, or by a sole remaining director, *provided, however*, that whenever the holders of any class or classes of stock or series thereof are entitled to elect one or more directors by the provisions of the Certificate of Incorporation, vacancies and newly created directorships of such class or classes or series shall, unless the Board of Directors determines by resolution that any such vacancies or newly created directorships shall be filled by stockholders, be filled by a majority of the directors elected by such class or classes or series thereof then in office, or by a sole remaining director so elected. Any director elected in accordance with the preceding sentence shall hold office for the remainder of the full term of the director for which the vacancy was created or occurred and until such director's successor shall have been elected and qualified. A vacancy in the Board of Directors shall be deemed to exist under this Bylaw in the case of the death, removal or resignation of any director.

**Section 19. Resignation.** Any director may resign at any time by delivering his or her notice in writing or by electronic transmission to the Secretary, such resignation to specify whether it will be effective at a particular time, upon receipt by the Secretary or at the pleasure of the Board of Directors. If no such specification is made, it shall be deemed effective at the pleasure of the Board of Directors. When one or more directors shall resign from the Board of Directors, effective at a future date, a majority of the directors then in office, including those who have so resigned, shall have power to fill such vacancy or vacancies, the vote thereon to take effect when such resignation or resignations shall become effective, and each Director so chosen shall hold office for the unexpired portion of the term of the Director whose place shall be vacated and until his successor shall have been duly elected and qualified.

**Section 20. Removal.**

(a) Subject to any limitations imposed by applicable law, the Board of Directors or any director may be removed from office at any time (i) with cause by the affirmative vote of the holders of a majority of the voting power of all then-outstanding shares of capital stock of the corporation entitled to vote generally at an election of directors or (ii) without cause by the affirmative vote of the holders of a majority of the voting power of all then-outstanding shares of capital stock of the corporation, entitled to elect such director.

**Section 21. Meetings**

(a) **Regular Meetings.** Unless otherwise restricted by the Certificate of Incorporation, regular meetings of the Board of Directors may be held at any time or date and at any place within or without the State of Delaware which has been designated by the Board of Directors and publicized among all directors, either orally or in writing, including a voice-messaging system or other system designated to record and communicate messages, facsimile, telegraph or telex, or by electronic mail or other electronic means. No further notice shall be required for a regular meeting of the Board of Directors.

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(b) **Special Meetings.** Unless otherwise restricted by the Certificate of Incorporation, special meetings of the Board of Directors may be held at any time and place within or without the State of Delaware whenever called by the Chairman of the Board, the President or any director.

(c) **Meetings by Electronic Communications Equipment.** Any member of the Board of Directors, or of any committee thereof, may participate in a meeting by means of conference telephone or other communications equipment by means of which all persons participating in the meeting can hear each other, and participation in a meeting by such means shall constitute presence in person at such meeting.

(d) **Notice of Special Meetings.** Notice of the time and place of all special meetings of the Board of Directors shall be orally or in writing, by telephone, including a voice messaging system or other system or technology designed to record and communicate messages, facsimile, telegraph or telex, or by electronic mail or other electronic means, during normal business hours, at least 24 hours before the date and time of the meeting. If notice is sent by US mail, it shall be sent by first class mail, postage prepaid at least three days before the date of the meeting. Notice of any meeting may be waived in writing or by electronic transmission at any time before or after the meeting and will be waived by any director by attendance thereat, except when the director attends the meeting for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened.

(e) **Waiver of Notice.** The transaction of all business at any meeting of the Board of Directors, or any committee thereof, however called or noticed, or wherever held, shall be as valid as though had at a meeting duly held after regular call and notice, if a quorum be present and if, either before or after the meeting, each of the directors not present who did not receive notice shall sign a written waiver of notice or shall waive notice by electronic transmission. All such waivers shall be filed with the corporate records or made a part of the minutes of the meeting.

**Section 22. Quorum and Voting.**

(a) Unless the Certificate of Incorporation requires a greater number, a quorum of the Board of Directors shall consist of a majority of the exact number of directors fixed from time to time by the Board of Directors in accordance with the Certificate of Incorporation; *provided, however*, at any meeting, whether a quorum be present or otherwise, a majority of the directors present may adjourn from time to time until the time fixed for the next regular meeting of the Board of Directors, without notice other than by announcement at the meeting.

(b) At each meeting of the Board of Directors at which a quorum is present, all questions and business shall be determined by the affirmative vote of a majority of the directors present, unless a different vote be required by law, the Certificate of Incorporation or these Bylaws.

**Section 23. Action Without Meeting.** Unless otherwise restricted by the Certificate of Incorporation or these Bylaws, any action required or permitted to be taken at any meeting of the Board of Directors or of any committee thereof may be taken without a meeting, if all members of the Board of Directors or committee, as the case may be, consent thereto in writing or by electronic transmission, and

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such writing or writings or transmission or transmissions are filed with the minutes of proceedings of the Board of Directors or committee. Such filing shall be in paper form if the minutes are maintained in paper form and shall be in electronic form if the minutes are maintained in electronic form.

**Section 24. Fees and Compensation.** Directors shall be entitled to such compensation for their services as may be approved by the Board of Directors, including, if so approved, by resolution of the Board of Directors, a fixed sum and expenses of attendance, if any, for attendance at each regular or special meeting of the Board of Directors and at any meeting of a committee of the Board of Directors. Nothing herein contained shall be construed to preclude any director from serving the corporation in any other capacity as an officer, agent, employee, or otherwise and receiving compensation therefor.

**Section 25. Committees.**

(a) **Executive Committee.** The Board of Directors may appoint an Executive Committee to consist of one or more members of the Board of Directors. The Executive Committee, to the extent permitted by law and provided in the resolution of the Board of Directors shall have and may exercise all the powers and authority of the Board of Directors in the management of the business and affairs of the corporation, and may authorize the seal of the corporation to be affixed to all papers which may require it; but no such committee shall have the power or authority in reference to (i) approving or adopting, or recommending to the stockholders, any action or matter expressly required by the DGCL to be submitted to stockholders for approval, or (ii) adopting, amending or repealing any bylaw of the corporation.

(b) **Other Committees.** The Board of Directors may, from time to time, appoint such other committees as may be permitted by law. Such other committees appointed by the Board of Directors shall consist of one or more members of the Board of Directors and shall have such

powers and perform such duties as may be prescribed by the resolution or resolutions creating such committees, but in no event shall any such committee have the powers denied to the Executive Committee in these Bylaws.

(c) **Term.** The Board of Directors, subject to any requirements of any outstanding series of Preferred Stock and the provisions of subsections (a) or (b) of this Bylaw may at any time increase or decrease the number of members of a committee or terminate the existence of a committee. The membership of a committee member shall terminate on the date of his death or voluntary resignation from the committee or from the Board of Directors. The Board of Directors may at any time for any reason remove any individual committee member and the Board of Directors may fill any committee vacancy created by death, resignation, removal or increase in the number of members of the committee. The Board of Directors may designate one or more directors as alternate members of any committee, who may replace any absent or disqualified member at any meeting of the committee, and, in addition, in the absence or disqualification of any member of a committee, the member or members thereof present at any meeting and not disqualified from voting, whether or not he or they constitute a quorum, may unanimously appoint another member of the Board of Directors to act at the meeting in the place of any such absent or disqualified member.

(d) **Meetings.** Unless the Board of Directors shall otherwise provide, regular meetings of the Executive Committee or any other committee appointed pursuant to this Section 25 shall be held at such times and places as are determined by the Board of Directors, or by any such committee, and when notice thereof has been given to each member of such committee, no further notice of such regular meetings need be given thereafter.

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Special meetings of any such committee may be held at any place which has been determined from time to time by such committee, and may be called by any director who is a member of such committee, upon notice to the members of such committee of the time and place of such special meeting given in the manner provided for the giving of notice to members of the Board of Directors of the time and place of special meetings of the Board of Directors. Notice of any special meeting of any committee may be waived in writing at any time before or after the meeting and will be waived by any director by attendance thereat, except when the director attends such special meeting for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened. Unless otherwise provided by the Board of Directors in the resolutions authorizing the creation of the committee, a majority of the authorized number of members of any such committee shall constitute a quorum for the transaction of business, and the act of a majority of those present at any meeting at which a quorum is present shall be the act of such committee.

**Section 26. Organization.** At every meeting of the directors, the Chairman of the Board of Directors, or, if a Chairman has not been appointed or is absent, the President, or if the President is absent, the most senior Vice President, (if a director) or, in the absence of any such person, a chairman of the meeting chosen by a majority of the directors present, shall preside over the meeting. The Secretary, or in his absence, any Assistant Secretary directed to do so by the President, shall act as secretary of the meeting.

## ARTICLE V

### OFFICERS

**Section 27. Officers Designated.** The officers of the corporation shall include, if and when designated by the Board of Directors, the Chief Executive Officer, the President, one or more Vice Presidents, the Secretary, the Chief Financial Officer, the Treasurer and the Controller, all of whom shall be elected at the annual organizational meeting of the Board of Directors. The Board of Directors may also appoint one or more Assistant Secretaries, Assistant Treasurers, Assistant Controllers and such other officers and agents with such powers and duties as it shall deem necessary. The Board of Directors may assign such additional titles to one or more of the officers as it shall deem appropriate. Any one person may hold any number of offices of the corporation at any one time unless specifically prohibited therefrom by law. The salaries and other compensation of the officers of the corporation shall be fixed by or in the manner designated by the Board of Directors.

### **Section 28. Tenure and Duties of Officers.**

(a) **General.** All officers shall hold office at the pleasure of the Board of Directors and until their successors shall have been duly elected and qualified, unless sooner removed. Any officer elected or appointed by the Board of Directors may be removed at any time by the Board of Directors. If the office of any officer becomes vacant for any reason, the vacancy may be filled by the Board of Directors.

(b) **Duties of Chairman of the Board of Directors.** The Chairman of the Board of Directors, when present, shall preside at all meetings of the stockholders and the Board of Directors. The Chairman of the Board of Directors shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers as the Board of Directors shall designate from time to time. If there is no President, then the Chairman of the Board of Directors shall also serve as the Chief Executive Officer of

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the corporation and shall have the powers and duties prescribed in paragraph (c) of this Section 28.

(c) **Duties of President.** The President shall preside at all meetings of the stockholders and at all meetings of the Board of Directors, unless the Chairman of the Board of Directors has been appointed and is present. Unless some other officer has been elected Chief Executive Officer of the corporation, the President shall be the chief executive officer of the corporation and shall, subject to the control of the Board of Directors, have general supervision, direction and control of the business and officers of the corporation. The President shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers as the Board of Directors shall designate from time to time.

(d) **Duties of Vice Presidents.** The Vice Presidents may assume and perform the duties of the President in the absence or disability of the President or whenever the office of President is vacant. The Vice Presidents shall perform other duties commonly incident to their office and shall also perform such other duties and have such other powers as the Board of Directors or the President shall designate from time to time.

(e) **Duties of Secretary.** The Secretary shall attend all meetings of the stockholders and of the Board of Directors and shall record all acts and proceedings thereof in the minute book of the corporation. The Secretary shall give notice in conformity with these Bylaws of all meetings of the stockholders and of all meetings of the Board of Directors and any committee thereof requiring notice. The Secretary shall perform all other duties provided for in these Bylaws and other duties commonly incident to the office and shall also perform such other duties and have such other



powers as the Board of Directors shall designate from time to time. The President may direct any Assistant Secretary to assume and perform the duties of the Secretary in the absence or disability of the Secretary, and each Assistant Secretary shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers as the Board of Directors or the President shall designate from time to time.

**(f) Duties of Chief Financial Officer.** The Chief Financial Officer shall keep or cause to be kept the books of account of the corporation in a thorough and proper manner and shall render statements of the financial affairs of the corporation in such form and as often as required by the Board of Directors or the President. The Chief Financial Officer, subject to the order of the Board of Directors, shall have the custody of all funds and securities of the corporation. The Chief Financial Officer shall perform other duties commonly incident to his office and shall also perform such other duties and have such other powers as the Board of Directors or the President shall designate from time to time. The President may direct the Treasurer or any Assistant Treasurer, or the Controller or any Assistant Controller to assume and perform the duties of the Chief Financial Officer in the absence or disability of the Chief Financial Officer, and each Treasurer and Assistant Treasurer and each Controller and Assistant Controller shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers as the Board of Directors or the President shall designate from time to time.

**Section 29. Delegation of Authority.** The Board of Directors may from time to time delegate the powers or duties of any officer to any other officer or agent, notwithstanding any provision hereof.

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**Section 30. Resignations.** Any officer may resign at any time by giving notice in writing or by electronic transmission notice to the Board of Directors or to the President or to the Secretary. Any such resignation shall be effective when received by the person or persons to whom such notice is given, unless a later time is specified therein, in which event the resignation shall become effective at such later time. Unless otherwise specified in such notice, the acceptance of any such resignation shall not be necessary to make it effective. Any resignation shall be without prejudice to the rights, if any, of the corporation under any contract with the resigning officer.

**Section 31. Removal.** Any officer may be removed from office at any time, either with or without cause, by the affirmative vote of a majority of the directors in office at the time, or by the unanimous written or electronic consent of the directors in office at the time, or by any committee or superior officers.

## ARTICLE VI

### EXECUTION OF CORPORATE INSTRUMENTS AND VOTING OF SECURITIES OWNED BY THE CORPORATION

**Section 32. Execution of Corporate Instruments.** The Board of Directors may, in its discretion, determine the method and designate the signatory officer or officers, or other person or persons, to execute on behalf of the corporation any corporate instrument or document, or to sign on behalf of the corporation the corporate name without limitation, or to enter into contracts on behalf of the corporation, except where otherwise provided by law or these Bylaws, and such execution or signature shall be binding upon the corporation.

All checks and drafts drawn on banks or other depositories on funds to the credit of the corporation or in special accounts of the corporation shall be signed by such person or persons as the Board of Directors shall authorize so to do.

Unless authorized or ratified by the Board of Directors or within the agency power of an officer, no officer, agent or employee shall have any power or authority to bind the corporation by any contract or engagement or to pledge its credit or to render it liable for any purpose or for any amount.

**Section 33. Voting of Securities Owned by the Corporation.** All stock and other securities of other corporations owned or held by the corporation for itself, or for other parties in any capacity, shall be voted, and all proxies with respect thereto shall be executed, by the person authorized so to do by resolution of the Board of Directors, or, in the absence of such authorization, by the Chairman of the Board of Directors, the Chief Executive Officer, the President, or any Vice President.

## ARTICLE VII

### SHARES OF STOCK

**Section 34. Form and Execution of Certificates.** The shares of the corporation shall be represented by certificates, or shall be uncertificated. Certificates for the shares of stock, if any, shall be in such form as is consistent with the Certificate of Incorporation and applicable law. Every holder of stock in the corporation represented by certificate shall be entitled to have a certificate signed by or in the name of the corporation by the Chairman of the Board of Directors, or the President or any Vice President and by the Treasurer or Assistant Treasurer or the Secretary or Assistant Secretary, certifying the number of shares owned by him in the corporation. Any or all of the signatures on the certificate may be facsimiles. In case any officer, transfer agent, or registrar who has signed or whose facsimile signature

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has been placed upon a certificate shall have ceased to be such officer, transfer agent, or registrar before such certificate is issued, it may be issued with the same effect as if he were such officer, transfer agent, or registrar at the date of issue.

**Section 35. Lost Certificates.** A new certificate or certificates shall be issued in place of any certificate or certificates theretofore issued by the corporation alleged to have been lost, stolen, or destroyed, upon the making of an affidavit of that fact by the person claiming the certificate of stock to be lost, stolen, or destroyed. The corporation may require, as a condition precedent to the issuance of a new certificate or certificates, the owner of such lost, stolen, or destroyed certificate or certificates, or the owner's legal representative, to agree to indemnify the corporation in such manner as it shall require or to give the corporation a surety bond in such form and amount as it may direct as indemnity against any claim that may be made against the corporation with respect to the certificate alleged to have been lost, stolen, or destroyed.

**Section 36. Transfers.**

(a) No holder of any of the shares of stock of the corporation may sell, transfer, assign, pledge, or otherwise dispose of or encumber any of the shares of stock of the corporation or any right or interest therein, whether voluntarily or by operation of law, or by gift or otherwise (each, a "Transfer") without the prior written consent of the corporation, upon duly authorized action of its Board of Directors. The corporation may withhold consent for any legitimate corporate purpose, as determined by the Board of Directors. Examples of the basis for the corporation to withhold its consent include, without limitation, (i) if such Transfer to individuals, companies or any other form of entity identified by the corporation as a potential competitor or considered by the corporation to be unfriendly; or (ii) if such Transfer increases the risk of the corporation having a class of security held of record by 2,000 or more persons, or 500 or more persons who are not accredited investors (as such term is defined by the SEC), as described in Section 12(g) of the 1934 Act and any related regulations, or otherwise requiring the corporation to register any class of securities under the 1934 Act; or (iii) if such Transfer would result in the loss of any federal or state securities law exemption relied upon by the corporation in connection with the initial issuance of such shares or the issuance of any other securities; or (iv) if such Transfer is facilitated in any manner by any public posting, message board, trading portal, internet site, or similar method of communication, including without limitation any trading portal or internet site intended to facilitate secondary transfers of securities; or (v) if such Transfer is to be effected in a brokered transaction; or (vi) if such Transfer represents a Transfer of less than all of the shares then held by the stockholder and its affiliates or is to be made to more than a single transferee.

(b) If a stockholder desires to Transfer any shares, then the stockholder shall first give written notice thereof to the corporation. The notice shall name the proposed transferee and state the number of shares to be transferred, the proposed consideration, and all other terms and conditions of the proposed transfer. Any shares proposed to be transferred to which Transfer the corporation has consented pursuant to Section 36(a) will first be subject to the corporation's right of first refusal located in Section 46 hereof.

(c) Any Transfer, or purported Transfer, of shares not made in strict compliance with this Section 36 shall be null and void, shall not be recorded on the books of the corporation and shall not be recognized by the corporation.

(d) The foregoing restriction on Transfer shall terminate upon the date securities of the corporation are first offered to the public pursuant to a registration statement

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filed with, and declared effective by, the United States Securities and Exchange Commission under the Securities Act of 1933, as amended.

(e) The certificates representing shares of stock of the corporation shall bear on their face the following legend so long as the foregoing Transfer restrictions are in effect:

"THE SHARES REPRESENTED BY THIS CERTIFICATE ARE SUBJECT TO A TRANSFER RESTRICTION, AS PROVIDED IN THE BYLAWS OF THE CORPORATION."

### **Section 37. Fixing Record Dates.**

(a) In order that the corporation may determine the stockholders entitled to notice of or to vote at any meeting of stockholders or any adjournment thereof, the Board of Directors may fix, in advance, a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted by the Board of Directors, and which record date shall, subject to applicable law, not be more than 60 nor less than ten days before the date of such meeting. If no record date is fixed by the Board of Directors, the record date for determining stockholders entitled to notice of or to vote at a meeting of stockholders shall be at the close of business on the day next preceding the day on which notice is given, or if notice is waived, at the close of business on the day next preceding the day on which the meeting is held. A determination of stockholders of record entitled to notice of or to vote at a meeting of stockholders shall apply to any adjournment of the meeting; *provided, however*, that the Board of Directors may fix a new record date for the adjourned meeting.

(b) In order that the corporation may determine the stockholders entitled to consent to corporate action in writing without a meeting, the Board of Directors may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted by the Board of Directors, and which date shall not be more than ten days after the date upon which the resolution fixing the record date is adopted by the Board of Directors. Any stockholder of record seeking to have the stockholders authorize or take corporate action by written consent shall, by written notice to the Secretary, request the Board of Directors to fix a record date. The Board of Directors shall promptly, but in all events within ten days after the date on which such a request is received, adopt a resolution fixing the record date. If no record date has been fixed by the Board of Directors within ten days of the date on which such a request is received, the record date for determining stockholders entitled to consent to corporate action in writing without a meeting, when no prior action by the Board of Directors is required by applicable law, shall be the first date on which a signed written consent setting forth the action taken or proposed to be taken is delivered to the corporation by delivery to its registered office in the State of Delaware, its principal place of business or an officer or agent of the corporation having custody of the book in which proceedings of meetings of stockholders are recorded. Delivery made to the corporation's registered office shall be by hand or by certified or registered mail, return receipt requested. If no record date has been fixed by the Board of Directors and prior action by the Board of Directors is required by law, the record date for determining stockholders entitled to consent to corporate action in writing without a meeting shall be at the close of business on the day on which the Board of Directors adopts the resolution taking such prior action.

(c) In order that the corporation may determine the stockholders entitled to receive payment of any dividend or other distribution or allotment of any rights or the

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stockholders entitled to exercise any rights in respect of any change, conversion or exchange of stock, or for the purpose of any other lawful action, the Board of Directors may fix, in advance, a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted, and which record date shall be not more than 60 days prior to such action. If no record date is fixed, the record date for determining stockholders for any such purpose shall be at the close of business on the day on which the Board of Directors adopts the resolution relating thereto.

**Section 38. Registered Stockholders.** The corporation shall be entitled to recognize the exclusive right of a person registered on its books as the owner of shares to receive dividends, and to vote as such owner, and shall not be bound to recognize any equitable or other claim to or interest in such share or shares on the part of any other person whether or not it shall have express or other notice thereof, except as otherwise provided by the laws of Delaware.

## ARTICLE VIII

### OTHER SECURITIES OF THE CORPORATION

**Section 39. Execution of Other Securities.** All bonds, debentures and other corporate securities of the corporation, other than stock certificates (covered in Section 34), may be signed by the Chairman of the Board of Directors, the President or any Vice President, or such other person as may be authorized by the Board of Directors, and the corporate seal impressed thereon or a facsimile of such seal imprinted thereon and attested by the signature of the Secretary or an Assistant Secretary, or the Chief Financial Officer or Treasurer or an Assistant Treasurer; *provided, however*, that where any such bond, debenture or other corporate security shall be authenticated by the manual signature, or where permissible facsimile signature, of a trustee under an indenture pursuant to which such bond, debenture or other corporate security shall be issued, the signatures of the persons signing and attesting the corporate seal on such bond, debenture or other corporate security may be the imprinted facsimile of the signatures of such persons. Interest coupons appertaining to any such bond, debenture or other corporate security, authenticated by a trustee as aforesaid, shall be signed by the Treasurer or an Assistant Treasurer of the corporation or such other person as may be authorized by the Board of Directors, or bear imprinted thereon the facsimile signature of such person. In case any officer who shall have signed or attested any bond, debenture or other corporate security, or whose facsimile signature shall appear thereon or on any such interest coupon, shall have ceased to be such officer before the bond, debenture or other corporate security so signed or attested shall have been delivered, such bond, debenture or other corporate security nevertheless may be adopted by the corporation and issued and delivered as though the person who signed the same or whose facsimile signature shall have been used thereon had not ceased to be such officer of the corporation.

## ARTICLE IX

### DIVIDENDS

**Section 40. Declaration of Dividends.** Dividends upon the capital stock of the corporation, subject to the provisions of the Certificate of Incorporation and applicable law, if any, may be declared by the Board of Directors pursuant to law at any regular or special meeting. Dividends may be paid in cash, in property, or in shares of the capital stock, subject to the provisions of the Certificate of Incorporation and applicable law.

**Section 41. Dividend Reserve.** Before payment of any dividend, there may be set aside out of any funds of the corporation available for dividends such sum or sums as the Board of Directors from

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time to time, in their absolute discretion, think proper as a reserve or reserves to meet contingencies, or for equalizing dividends, or for repairing or maintaining any property of the corporation, or for such other purpose as the Board of Directors shall think conducive to the interests of the corporation, and the Board of Directors may modify or abolish any such reserve in the manner in which it was created.

## ARTICLE X

### FISCAL YEAR

**Section 42. Fiscal Year.** The fiscal year of the corporation shall be fixed by resolution of the Board of Directors.

## ARTICLE XI

### INDEMNIFICATION

**Section 43. Indemnification of Directors, Executive Officers, Other Officers, Employees and Other Agents.**

(a) **Directors and Officers.** The corporation shall indemnify its directors and officers to the fullest extent not prohibited by the DGCL or any other applicable law; *provided, however*, that the corporation may modify the extent of such indemnification by individual contracts with its directors and officers; and, *provided, further*, that the corporation shall not be required to indemnify any director or officer in connection with any proceeding (or part thereof) initiated by such person unless (i) such indemnification is expressly required to be made by law, (ii) the proceeding was authorized by the Board of Directors of the corporation, (iii) such indemnification is provided by the corporation, in its sole discretion, pursuant to the powers vested in the corporation under the Delaware General Corporation Law or any other applicable law or (iv) such indemnification is required to be made under subsection (d).

(b) **Employees and Other Agents.** The corporation shall have power to indemnify its employees and other agents as set forth in the DGCL or any other applicable law. The Board of Directors shall have the power to delegate the determination of whether indemnification shall be given to any such person to such officers or other persons as the Board of Directors shall determine.

(c) **Expenses.** The corporation shall advance to any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative, by reason of the fact that he is or was a director or officer, of the corporation, or is or was serving at the request of the corporation as a director or officer of another corporation, partnership, joint venture, trust or other enterprise, prior to the final disposition of the proceeding, promptly following request therefor, all expenses incurred by any director or officer in connection with such proceeding, provided, however, that, if the DGCL requires, an advancement of expenses incurred by a director or officer in his or her capacity as a director or officer (and not in any other capacity in which service was or is rendered by such indemnitee, including, without limitation, service to an employee benefit plan) shall be made only upon delivery to the corporation of an undertaking, by or on behalf of such indemnitee, to repay all amounts so advanced if it shall ultimately be determined by final judicial decision from which there is no further right to

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appeal that such indemnitee is not entitled to be indemnified for such expenses under this Section 43 or otherwise.

Notwithstanding the foregoing, unless otherwise determined pursuant to paragraph (e) of this Bylaw, no advance shall be made by the corporation to an officer of the corporation (except by reason of the fact that such officer is or was a director of the corporation, in which event this paragraph shall not apply) in any action, suit or proceeding, whether civil, criminal, administrative or investigative, if a determination is reasonably and promptly made (i) by a majority vote of a quorum consisting of directors who were not parties to the proceeding, even if not a quorum, or (ii) by a committee of such directors designated by a majority of such directors, even though less than a quorum, or (iii) if there are no such directors, or such directors so direct, by independent legal counsel in a written opinion, that the facts known to the decision-making party at the time such determination is made demonstrate clearly and convincingly that such person acted in bad faith or in a manner that such person did not believe to be in or not opposed to the best interests of the corporation.

**(d) Enforcement.** Without the necessity of entering into an express contract, all rights to indemnification and advances to directors and officers under this Bylaw shall be deemed to be contractual rights and be effective to the same extent and as if provided for in a contract between the corporation and the director or officer. Any right to indemnification or advances granted by this Bylaw to a director or officer shall be enforceable by or on behalf of the person holding such right in any court of competent jurisdiction if (i) the claim for indemnification or advances is denied, in whole or in part, or (ii) no disposition of such claim is made within 90 days of request therefor. The claimant in such enforcement action, if successful in whole or in part, shall be entitled to be paid also the expense of prosecuting the claim. In connection with any claim for indemnification, the corporation shall be entitled to raise as a defense to any such action that the claimant has not met the standards of conduct that make it permissible under the DGCL or any other applicable law for the corporation to indemnify the claimant for the amount claimed. In connection with any claim by an officer of the corporation (except in any action, suit or proceeding, whether civil, criminal, administrative or investigative, by reason of the fact that such officer is or was a director of the corporation) for advances, the corporation shall be entitled to raise as a defense as to any such action clear and convincing evidence that such person acted in bad faith or in a manner that such person did not believe to be in or not opposed to the best interests of the corporation, or with respect to any criminal action or proceeding that such person acted without reasonable cause to believe that his conduct was lawful. Neither the failure of the corporation (including its Board of Directors, independent legal counsel or its stockholders) to have made a determination prior to the commencement of such action that indemnification of the claimant is proper in the circumstances because he has met the applicable standard of conduct set forth in the DGCL or any other applicable law, nor an actual determination by the corporation (including its Board of Directors, independent legal counsel or its stockholders) that the claimant has not met such applicable standard of conduct, shall be a defense to the action or create a presumption that claimant has not met the applicable standard of conduct.

**(e) Non-Exclusivity of Rights.** The rights conferred on any person by this Bylaw shall not be exclusive of any other right which such person may have or hereafter acquire under any applicable statute, provision of the Certificate of Incorporation, Bylaws, agreement, vote of stockholders or disinterested directors or otherwise, both as to action in his official capacity and as to action in another capacity while holding office. The corporation is specifically authorized to enter into individual contracts with any or all of its directors, officers, employees or agents respecting indemnification and advances, to the fullest extent not prohibited by the DGCL or any other applicable law.

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**(f) Survival of Rights.** The rights conferred on any person by this Bylaw shall continue as to a person who has ceased to be a director, officer, employee or other agent and shall inure to the benefit of the heirs, executors and administrators of such a person.

**(g) Insurance.** To the fullest extent permitted by the DGCL, or any other applicable law, the corporation, upon approval by the Board of Directors, may purchase insurance on behalf of any person required or permitted to be indemnified pursuant to this Bylaw.

**(h) Amendments.** Any repeal or modification of this Bylaw shall only be prospective and shall not affect the rights under this Bylaw in effect at the time of the alleged occurrence of any action or omission to act that is the cause of any proceeding against any agent of the corporation.

**(i) Saving Clause.** If this Bylaw or any portion hereof shall be invalidated on any ground by any court of competent jurisdiction, then the corporation shall nevertheless indemnify each director and officer to the full extent not prohibited by any applicable portion of this Bylaw that shall not have been invalidated, or by any other applicable law. If this Section 43 shall be invalid due to the application of the indemnification provisions of another jurisdiction, then the corporation shall indemnify each director and officer to the full extent under applicable law.

**(j) Certain Definitions.** For the purposes of this Bylaw, the following definitions shall apply:

**(1)** The term “proceeding” shall be broadly construed and shall include, without limitation, the investigation, preparation, prosecution, defense, settlement, arbitration and appeal of, and the giving of testimony in, any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative.

**(2)** The term “expenses” shall be broadly construed and shall include, without limitation, court costs, attorneys’ fees, witness fees, fines, amounts paid in settlement or judgment and any other costs and expenses of any nature or kind incurred in connection with any proceeding.

**(3)** The term the “corporation” shall include, in addition to the resulting corporation, any constituent corporation (including any constituent of a constituent) absorbed in a consolidation or merger which, if its separate existence had continued, would have had power and authority to indemnify its directors, officers, and employees or agents, so that any person who is or was a director, officer, employee or agent of such constituent corporation, or is or was serving at the request of such constituent corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, shall stand in the same position under the provisions of this Bylaw with respect to the resulting or surviving corporation as he would have with respect to such constituent corporation if its separate existence had continued.

**(4)** References to a “director,” “executive officer,” “officer,” “employee,” or “agent” of the corporation shall include, without limitation, situations where such person is serving at the request of the corporation as, respectively, a director, executive officer, officer, employee, trustee or agent of another corporation, partnership, joint venture, trust or other enterprise.

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**(5)** References to “other enterprises” shall include employee benefit plans; references to “fines” shall include any excise taxes assessed on a person with respect to an employee benefit plan; and references to “serving at the request of the corporation” shall include any service as a director, officer, employee or agent of the corporation which imposes duties on, or involves services by, such director, officer, employee, or agent with respect to an employee benefit plan, its participants, or beneficiaries; and a person who acted in good faith and in a manner he reasonably believed to be in the interest of the

participants and beneficiaries of an employee benefit plan shall be deemed to have acted in a manner “not opposed to the best interests of the corporation” as referred to in this Bylaw.

## ARTICLE XII

### NOTICES

#### Section 44. Notices.

(a) **Notice to Stockholders.** Written notice to stockholders of stockholder meetings shall be given as provided in Section 7 herein. Without limiting the manner by which notice may otherwise be given effectively to stockholders under any agreement or contract with such stockholder, and except as otherwise required by law, written notice to stockholders for purposes other than stockholder meetings may be sent by United States mail or nationally recognized overnight courier, or by facsimile, telegraph or telex or by electronic mail or other electronic means.

(b) **Notice to Directors.** Any notice required to be given to any director may be given by the method stated in subsection (a), or as provided for in Section 21 of these Bylaws. If such notice is not delivered personally, it shall be sent to such address as such director shall have filed in writing with the Secretary, or, in the absence of such filing, to the last known post office address of such director.

(c) **Affidavit of Mailing.** An affidavit of mailing, executed by a duly authorized and competent employee of the corporation or its transfer agent appointed with respect to the class of stock affected or other agent, specifying the name and address or the names and addresses of the stockholder or stockholders, or director or directors, to whom any such notice or notices was or were given, and the time and method of giving the same, shall in the absence of fraud, be prima facie evidence of the facts therein contained.

(d) **Methods of Notice.** It shall not be necessary that the same method of giving notice be employed in respect of all recipients of notice, but one permissible method may be employed in respect of any one or more, and any other permissible method or methods may be employed in respect of any other or others.

(e) **Notice to Person with Whom Communication Is Unlawful.** Whenever notice is required to be given, under any provision of law or of the Certificate of Incorporation or Bylaws of the corporation, to any person with whom communication is unlawful, the giving of such notice to such person shall not be required and there shall be no duty to apply to any governmental authority or agency for a license or permit to give such notice to such person. Any action or meeting which shall be taken or held without notice to any such person with whom communication is unlawful shall have the same force and effect as if such notice had been duly given. In the event that the action taken by the corporation is such as to require the filing of a certificate under any provision of the DGCL, the certificate

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shall state, if such is the fact and if notice is required, that notice was given to all persons entitled to receive notice except such persons with whom communication is unlawful.

(f) **Notice to Stockholders Sharing an Address.** Except as otherwise prohibited under DGCL, any notice given under the provisions of DGCL, the Certificate of Incorporation or the Bylaws shall be effective if given by a single written notice to stockholders who share an address if consented to by the stockholders at that address to whom such notice is given. Such consent shall have been deemed to have been given if such stockholder fails to object in writing to the corporation within 60 days of having been given notice by the corporation of its intention to send the single notice. Any consent shall be revocable by the stockholder by written notice to the corporation.

## ARTICLE XIII

### AMENDMENTS

**Section 45. Amendments.** The Board of Directors is expressly empowered to adopt, amend or repeal Bylaws of the corporation. The stockholders shall also have power to adopt, amend or repeal the Bylaws of the corporation; *provided, however*, that, in addition to any vote of the holders of any class or series of stock of the corporation required by law or by the Certificate of Incorporation, such action by stockholders shall require the affirmative vote of the holders of at least a majority of the voting power of all of the then-outstanding shares of the capital stock of the corporation entitled to vote generally in the election of directors, voting together as a single class.

## ARTICLE XIV

### LOANS TO OFFICERS

**Section 46. Loans to Officers.** Except as otherwise prohibited under applicable law, the corporation may lend money to, or guarantee any obligation of, or otherwise assist any officer or other employee of the corporation or of its subsidiaries, including any officer or employee who is a Director of the corporation or its subsidiaries, whenever, in the judgment of the Board of Directors, such loan, guarantee or assistance may reasonably be expected to benefit the corporation. The loan, guarantee or other assistance may be with or without interest and may be unsecured, or secured in such manner as the Board of Directors shall approve, including, without limitation, a pledge of shares of stock of the corporation. Nothing in these Bylaws shall be deemed to deny, limit or restrict the powers of guaranty or warranty of the corporation at common law or under any statute.

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**AMENDED AND RESTATED INVESTORS' RIGHTS AGREEMENT**

This **AMENDED AND RESTATED INVESTORS' RIGHTS AGREEMENT** is made as of the 23rd day of July, 2014, by and among **FLEX PHARMA, INC.**, a Delaware corporation (the "**Company**"), each of the investors listed on Schedule A hereto, each of which is referred to in this Agreement as an "**Investor**," any Additional Purchaser (as defined in the Purchase Agreement) that becomes a party to this Agreement in accordance with Section 6.9 hereof, and the stockholders listed on Schedule B hereto, each of whom is referred to as a "**Key Holder**".

**RECITALS**

**WHEREAS**, the Company and certain of the Investors are parties to that certain Amended and Restated Investors' Rights Agreement, dated April 10, 2014 (the "**Prior Agreement**");

**WHEREAS**, concurrently with the execution of this agreement, the Company and the Investors are entering into that certain Series B Preferred Stock Purchase Agreement dated as of July 23, 2014 (the "**Purchase Agreement**"); and

**WHEREAS**, the Key Holders, the existing Investors and the Company desire to induce certain Investors to purchase the Company's Series B Preferred Stock, par value \$0.0001 per share ("**Series B Preferred Stock**") pursuant to the Purchase Agreement, as amended, by entering into this Agreement pursuant to which the Prior Agreement is hereby amended and restated in its entirety as set forth herein.

**NOW, THEREFORE**, the parties hereby agree as follows:

1. **Definitions.** For purposes of this Agreement:

1.1 "**Affiliate**" means, with respect to any specified Person, any other Person who, directly or indirectly, controls, is controlled by, or is under common control with such Person, including without limitation any general partner, managing member, officer or director of such Person or any venture capital fund now or hereafter existing that is controlled by one or more general partners or managing members of, or shares the same management company with, such Person.

1.2 "**Common Stock**" means shares of the Company's common stock, par value \$0.0001 per share.

1.3 "**Damages**" means any loss, damage, or liability (joint or several) to which a party hereto may become subject under the Securities Act, the Exchange Act, or other federal or state law, insofar as such loss, damage, or liability (or any action in respect thereof) arises out of or is based upon (i) any untrue statement or alleged untrue statement of a material fact contained in any registration statement of the Company, including any preliminary prospectus or final prospectus contained therein or any amendments or supplements thereto; (ii) an omission or alleged omission to state therein a material fact required to be stated therein,

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or necessary to make the statements therein not misleading; or (iii) any violation or alleged violation by the indemnifying party (or any of its agents or Affiliates) of the Securities Act, the Exchange Act, any state securities law, or any rule or regulation promulgated under the Securities Act, the Exchange Act, or any state securities law.

1.4 "**Derivative Securities**" means any securities or rights convertible into, or exercisable or exchangeable for (in each case, directly or indirectly), Common Stock, including options and warrants.

1.5 "**Exchange Act**" means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

1.6 "**Excluded Registration**" means (i) a registration relating to the sale of securities to employees of the Company or a subsidiary pursuant to a stock option, stock purchase, or similar plan; (ii) a registration relating to a SEC Rule 145 transaction; (iii) a registration on any form that does not include substantially the same information as would be required to be included in a registration statement covering the sale of the Registrable Securities; or (iv) a registration in which the only Common Stock being registered is Common Stock issuable upon conversion of debt securities that are also being registered.

1.7 "**Form S-1**" means such form under the Securities Act as in effect on the date hereof or any successor registration form under the Securities Act subsequently adopted by the SEC.

1.8 "**Form S-3**" means such form under the Securities Act as in effect on the date hereof or any successor registration form under the Securities Act subsequently adopted by the SEC that permits incorporation of substantial information by reference to other documents filed by the Company with the SEC.

1.9 "**GAAP**" means generally accepted accounting principles in the United States.

1.10 "**Holder**" means any holder of Registrable Securities who is a party to this Agreement.

1.11 "**Immediate Family Member**" means a child, stepchild, grandchild, parent, stepparent, grandparent, spouse, sibling, mother-in-law, father-in-law, son-in-law, daughter-in-law, brother-in-law, or sister-in-law, including adoptive relationships, of a natural person referred to herein.

1.12 "**Initiating Holders**" means, collectively, Holders who properly initiate a registration request under this Agreement.

1.13 "**IPO**" means the Company's first underwritten public offering of its Common Stock under the Securities Act.

1.14 "**Key Employee**" means any executive-level employee (including vice president-level positions) as well as any employee who, either alone or in concert with others,



develops, invents, programs, or designs any Company Intellectual Property (as defined in the Purchase Agreement).

1.15 **“Key Holder Registrable Securities”** means (i) the shares of Common Stock held by the Key Holders, and (ii) any Common Stock issued as (or issuable upon the conversion or exercise of any warrant, right, or other security that is issued as) a dividend or other distribution with respect to, or in exchange for or in replacement of such shares.

1.16 **“National Securities Exchange”** means a national securities exchange, including, for example, the NASDAQ Capital Market and the NASDAQ Global Market.

1.17 **“New Securities”** means, collectively, equity securities of the Company, whether or not currently authorized, as well as rights, options, or warrants to purchase such equity securities, or securities of any type whatsoever that are, or may become, convertible or exchangeable into or exercisable for such equity securities.

1.18 **“Person”** means any individual, corporation, partnership, trust, limited liability company, association or other entity.

1.19 **“Preferred Directors”** means any director of the Company that the holders of record of the Preferred Stock are entitled to elect pursuant to the Company’s Certificate of Incorporation.

1.20 **“Preferred Stock”** means, collectively, all shares of Series A Preferred Stock and Series B Preferred Stock and shares of any other series of preferred stock of the Company issued from time to time.

1.21 **“Qualified Form 10 Transaction”** means a transaction, approved by the Requisite Investors, contemplating a private placement financing in which the Company sells Common Stock for aggregate gross proceeds (excluding expenses and fees) of \$25 million at a price of at least \$2.00 per share (subject to appropriate adjustment for stock splits, stock dividends, combinations and other similar recapitalizations affecting the number of such shares issued and outstanding), in connection with which the Company is contractually required to (i) consummate, within 180 days of such private placement financing, a reverse merger transaction with a “blank check company” as defined in Rule 419 promulgated under the Securities Act that has filed a Form 10 Registration Statement and is registered under the Securities Exchange Act of 1934, as amended (a **“34 Act Company”**), or (ii) file a Form 10 Registration Statement with a purpose of becoming a 34 Act Company.

1.22 **“Registrable Securities”** means (i) the Common Stock issuable or issued upon conversion of the Preferred Stock, excluding any Common Stock issued upon conversion of the Preferred Stock pursuant to the “Special Mandatory Conversion” provisions of the Company’s Certificate of Incorporation; (ii) any Common Stock, or any Common Stock issued or issuable (directly or indirectly) upon conversion and/or exercise of any other securities of the Company, acquired by the Investors after the date hereof; (iii) the Key Holder Registrable Securities, provided, however, that such Key holder Registrable Securities shall not be deemed Registrable Securities and the Key holders shall not be deemed Holders for the purposes of Subsections 2.1, 2.10, 3.1 and 3.2; and (iv) any Common Stock issued as (or issuable upon the

conversion or exercise of any warrant, right, or other security that is issued as) a dividend or other distribution with respect to, or in exchange for or in replacement of, the shares referenced in clauses (i) and (ii) above; excluding in all cases, however, any Registrable Securities sold by a Person in a transaction in which the applicable rights under this Agreement are not assigned pursuant to Section 6.1, and excluding for purposes of Section 2 any shares for which registration rights have terminated pursuant to Section 2.13 of this Agreement.

1.23 **“Registrable Securities then outstanding”** means the number of shares determined by adding the number of shares of outstanding Common Stock that are Registrable Securities and the number of shares of Common Stock issuable (directly or indirectly) pursuant to then exercisable and/or convertible securities that are Registrable Securities.

1.24 **“Requisite Investors”** means holders of a majority of the shares of Common Stock issued or issuable upon conversion of the shares of Series A Preferred Stock and Series B Preferred Stock held by the Investors (voting as a single class and on an as-converted basis).

1.25 **“Restricted Securities”** means the securities of the Company required to bear the legend set forth in Section 2.12(b) hereof.

1.20 **“SEC”** means the Securities and Exchange Commission.

1.21 **“SEC Rule 144”** means Rule 144 promulgated by the SEC under the Securities Act.

1.22 **“SEC Rule 145”** means Rule 145 promulgated by the SEC under the Securities Act.

1.23 **“Securities Act”** means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

1.24 **“Selling Expenses”** means all underwriting discounts, selling commissions, and stock transfer taxes applicable to the sale of Registrable Securities, and fees and disbursements of counsel for any Holder, except for the fees and disbursements of the Selling Holder Counsel borne and paid by the Company as provided in Section 2.6.

1.25 **“Series A Preferred Stock”** means shares of the Company’s Series A Preferred Stock, par value \$0.0001 per share.

2. Registration Rights. The Company covenants and agrees as follows:

2.1 Demand Registration.

(a) Form S-1 Demand. If at any time after the earlier of (i) three (3) years after the date of this Agreement or (ii) one hundred eighty (180) days after the effective date of the registration statement for the IPO, the Company receives a request from Holders of at least twenty percent (20%) of

Holders having an anticipated aggregate offering price, net of Selling Expenses, of at least \$10 million, then the Company shall (i) within ten (10) days after the date such request is given, give notice thereof (the “**Demand Notice**”) to all Holders other than the Initiating Holders; and (ii) as soon as practicable, and in any event within sixty (60) days after the date such request is given by the Initiating Holders, file a Form S-1 registration statement under the Securities Act covering all Registrable Securities that the Initiating Holders requested to be registered and any additional Registrable Securities requested to be included in such registration by any other Holders, as specified by notice given by each such Holder to the Company within twenty (20) days of the date the Demand Notice is given, and in each case, subject to the limitations of [Section 2.1\(c\)](#) and [Section 2.3](#).

(b) **Form S-3 Demand.** If at any time when it is eligible to use a Form S-3 registration statement, the Company receives a request from Holders that the Company file a Form S-3 registration statement with respect to outstanding Registrable Securities of such Holders having an anticipated aggregate offering price, net of Selling Expenses, of at least \$3 million, then the Company shall (i) within ten (10) days after the date such request is given, give a Demand Notice to all Holders other than the Initiating Holders; and (ii) as soon as practicable, and in any event within forty-five (45) days after the date such request is given by the Initiating Holders, file a Form S-3 registration statement under the Securities Act covering all Registrable Securities requested to be included in such registration by any other Holders, as specified by notice given by each such Holder to the Company within twenty (20) days of the date the Demand Notice is given, and in each case, subject to the limitations of [Section 2.1\(c\)](#) and [Section 2.3](#).

(c) Notwithstanding the foregoing obligations, if the Company furnishes to Holders requesting a registration pursuant to this [Section 2.1](#) a certificate signed by the Company’s chief executive officer stating that in the good faith judgment of the Company’s Board of Directors it would be materially detrimental to the Company and its stockholders for such registration statement to either become effective or remain effective for as long as such registration statement otherwise would be required to remain effective, because such action would (i) materially interfere with a significant acquisition, corporate reorganization, or other similar transaction involving the Company; (ii) require premature disclosure of material information that the Company has a bona fide business purpose for preserving as confidential; or (iii) render the Company unable to comply with requirements under the Securities Act or Exchange Act, then the Company shall have the right to defer taking action with respect to such filing, and any time periods with respect to filing or effectiveness thereof shall be tolled correspondingly, for a period of not more than thirty (30) days after the request of the Initiating Holders is given; provided, however, that the Company may not invoke this right more than once in any twelve (12) month period; and provided further that the Company shall not register any securities for its own account or that of any other stockholder during such thirty (30) day period other than pursuant to a registration relating to the sale of securities to employees of the Company or a subsidiary pursuant to a stock option, stock purchase, or similar plan; a registration on any form that does not include substantially the same information as would be required to be included in a registration statement covering the sale of the Registrable Securities; or a registration in which the only Common Stock being registered is Common Stock issuable upon conversion of debt securities that are also being registered.

(d) The Company shall not be obligated to effect, or to take any action to effect, any registration pursuant to [Section 2.1\(a\)](#) (i) during the period that is sixty (60) days before the Company’s good faith estimate of the date of filing of, and ending on a date that is one hundred eighty (180) days after the effective date of, a Company-initiated registration, provided, that the Company is actively employing in good faith commercially reasonable efforts to cause such registration statement to become effective; (ii) after the Company has effected two registrations pursuant to [Section 2.1\(a\)](#); or (iii) if the Initiating Holders propose to dispose of shares of Registrable Securities that may be immediately registered on Form S-3 pursuant to a request made pursuant to [Section 2.1\(b\)](#). The Company shall not be obligated to effect, or to take any action to effect, any registration pursuant to [Section 2.1\(b\)](#) (i) during the period that is thirty (30) days before the Company’s good faith estimate of the date of filing of, and ending on a date that is ninety (90) days after the effective date of, a Company-initiated registration, provided, that the Company is actively employing in good faith commercially reasonable efforts to cause such registration statement to become effective; or (ii) if the Company has effected two registrations pursuant to [Section 2.1\(b\)](#) within the twelve (12) month period immediately preceding the date of such request. A registration shall not be counted as “effected” for purposes of this [Section 2.1\(d\)](#) until such time as the applicable registration statement has been declared effective by the SEC, unless the Initiating Holders withdraw their request for such registration, elect not to pay the registration expenses therefor, and forfeit their right to one demand registration statement pursuant to [Section 2.6](#), in which case such withdrawn registration statement shall be counted as “effected” for purposes of this [Section 2.1\(d\)](#).

2.2 **Company Registration.** If the Company proposes to register (including, for this purpose, a registration effected by the Company for stockholders other than the Holders) any of its Common Stock under the Securities Act in connection with the public offering of such securities solely for cash (other than in an Excluded Registration), the Company shall, at such time, promptly give each Holder notice of such registration. Upon the request of each Holder given within twenty (20) days after such notice is given by the Company, the Company shall, subject to the provisions of [Section 2.3](#), cause to be registered all of the Registrable Securities that each such Holder has requested to be included in such registration. The Company shall have the right to terminate or withdraw any registration initiated by it under this [Section 2.2](#) before the effective date of such registration, whether or not any Holder has elected to include Registrable Securities in such registration. The expenses (other than Selling Expenses) of such withdrawn registration shall be borne by the Company in accordance with [Section 2.6](#).

### 2.3 **Underwriting Requirements.**

(a) If, pursuant to [Section 2.1](#), the Initiating Holders intend to distribute the Registrable Securities covered by their request by means of an underwriting, they shall so advise the Company as a part of their request made pursuant to [Section 2.1](#), and the Company shall include such information in the Demand Notice. The underwriter(s) will be selected by the Company and shall be reasonably acceptable to a majority in interest of the Initiating Holders. In such event, the right of any Holder to include such Holder’s Registrable Securities in such registration shall be conditioned upon such Holder’s participation in such underwriting and the inclusion of such Holder’s Registrable Securities in the underwriting to the extent provided herein. All Holders proposing to distribute their securities through such underwriting shall (together with the Company as provided in [Section 2.4\(e\)](#)) enter into an

underwriting agreement in customary form with the underwriter(s) selected for such underwriting. Notwithstanding any other provision of this [Section 2.3](#), if the underwriter(s) advise(s) the Initiating Holders in writing that marketing factors require a limitation on the number of shares to be underwritten, then the Initiating Holders shall so advise all Holders of Registrable Securities that otherwise would be underwritten pursuant hereto, and the number of Registrable Securities that may be included in the underwriting shall be allocated among such Holders of Registrable Securities, including the Initiating Holders, in proportion (as nearly as

practicable) to the number of Registrable Securities owned by each Holder or in such other proportion as shall mutually be agreed to by all such selling Holders; provided, however, that the number of Registrable Securities held by the Holders to be included in such underwriting shall not be reduced unless all other securities are first entirely excluded from the underwriting; and provided, further, that any Registrable Securities which are not Key Holder Registrable Securities shall not be excluded from such underwriting unless all Key Holder Registrable Securities are first excluded from such offering. To facilitate the allocation of shares in accordance with the above provisions, the Company or the underwriters may round the number of shares allocated to any Holder to the nearest 100 shares.

(b) In connection with any offering involving an underwriting of shares of the Company's capital stock pursuant to Section 2.2, the Company shall not be required to include any of the Holders' Registrable Securities in such underwriting unless the Holders accept the terms of the underwriting as agreed upon between the Company and its underwriters, and then only in such quantity as the underwriters in their sole discretion determine will not jeopardize the success of the offering by the Company. If the total number of securities, including Registrable Securities, requested by stockholders to be included in such offering exceeds the number of securities to be sold (other than by the Company) that the underwriters in their reasonable discretion determine is compatible with the success of the offering, then the Company shall be required to include in the offering only that number of such securities, including Registrable Securities, which the underwriters and the Company in their sole discretion determine will not jeopardize the success of the offering. If the underwriters determine that less than all of the Registrable Securities requested to be registered can be included in such offering, then the Registrable Securities that are included in such offering shall be allocated among the selling Holders in proportion (as nearly as practicable to) the number of Registrable Securities owned by each selling Holder or in such other proportions as shall mutually be agreed to by all such selling Holders. To facilitate the allocation of shares in accordance with the above provisions, the Company or the underwriters may round the number of shares allocated to any Holder to the nearest 100 shares. Notwithstanding the foregoing, in no event shall (i) the number of Registrable Securities included in the offering be reduced unless all other securities (other than securities to be sold by the Company) are first entirely excluded from the offering, (ii) the number of Registrable Securities included in the offering be reduced below thirty percent (30%) of the total number of securities included in such offering, unless such offering is the IPO, in which case the selling Holders may be excluded further if the underwriters make the determination described above and no other stockholder's securities are included in such offering or (iii) notwithstanding (ii) above, any Registrable Securities which are not Key Holder Registrable Securities be excluded from such underwriting unless all Key Holder Registrable Securities are first excluded from such offering. For purposes of the provision in this Section 2.3(b) concerning apportionment, for any selling Holder that is a partnership, limited liability company, or corporation, the partners, members, retired partners, retired members, stockholders,

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and Affiliates of such Holder, or the estates and Immediate Family Members of any such partners, retired partners, members, and retired members and any trusts for the benefit of any of the foregoing Persons, shall be deemed to be a single "selling Holder," and any pro rata reduction with respect to such "selling Holder" shall be based upon the aggregate number of Registrable Securities owned by all Persons included in such "selling Holder," as defined in this sentence.

2.4 Obligations of the Company. Whenever required under this Section 2 to effect the registration of any Registrable Securities, the Company shall, as expeditiously as reasonably possible:

(a) prepare and file with the SEC a registration statement with respect to such Registrable Securities and use its commercially reasonable efforts to cause such registration statement to become effective and, upon the request of the Holders of a majority of the Registrable Securities registered thereunder, keep such registration statement effective for a period of up to one hundred twenty (120) days or, if earlier, until the distribution contemplated in the registration statement has been completed; provided, however, that (i) such one hundred twenty (120) day period shall be extended for a period of time equal to the period the Holder refrains, at the request of an underwriter of Common Stock (or other securities) of the Company, from selling any securities included in such registration, and (ii) in the case of any registration of Registrable Securities on Form S-3 that are intended to be offered on a continuous or delayed basis, subject to compliance with applicable SEC rules, such one hundred twenty (120) day period shall be extended for up to one hundred eighty (180) days, if necessary, to keep the registration statement effective until all such Registrable Securities are sold;

(b) prepare and file with the SEC such amendments and supplements to such registration statement, and the prospectus used in connection with such registration statement, as may be necessary to comply with the Securities Act in order to enable the disposition of all securities covered by such registration statement;

(c) furnish to the selling Holders such numbers of copies of a prospectus, including a preliminary prospectus, as required by the Securities Act, and such other documents as the Holders may reasonably request in order to facilitate their disposition of their Registrable Securities;

(d) use its commercially reasonable efforts to register and qualify the securities covered by such registration statement under such other securities or blue-sky laws of such jurisdictions as shall be reasonably requested by the selling Holders; provided that the Company shall not be required to qualify to do business or to file a general consent to service of process in any such states or jurisdictions, unless the Company is already subject to service in such jurisdiction and except as may be required by the Securities Act;

(e) in the event of any underwritten public offering, enter into and perform its obligations under an underwriting agreement, in usual and customary form, with the underwriter(s) of such offering;

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(f) use its commercially reasonable efforts to cause all such Registrable Securities covered by such registration statement to be listed on a national securities exchange or trading system and each securities exchange and trading system (if any) on which similar securities issued by the Company are then listed;

(g) provide a transfer agent and registrar for all Registrable Securities registered pursuant to this Agreement and provide a CUSIP number for all such Registrable Securities, in each case not later than the effective date of such registration;

(h) promptly make available for inspection by the selling Holders, any underwriter(s) participating in any disposition pursuant to such registration statement, and any attorney or accountant or other agent retained by any such underwriter or selected by the selling Holders, all financial and other records, pertinent corporate documents, and properties of the Company, and cause the Company's officers, directors, employees, and independent accountants to supply all information reasonably requested by any such seller, underwriter, attorney, accountant, or agent, in each case, as necessary or advisable to verify the accuracy of the information in such registration statement and to conduct appropriate due diligence in connection therewith;

(i) notify each selling Holder, promptly after the Company receives notice thereof, of the time when such registration statement has been declared effective or a supplement to any prospectus forming a part of such registration statement has been filed; and

(j) after such registration statement becomes effective, notify each selling Holder of any request by the SEC that the Company amend or supplement such registration statement or prospectus.

2.5 Furnish Information. It shall be a condition precedent to the obligations of the Company to take any action pursuant to this Section 2 with respect to the Registrable Securities of any selling Holder that such Holder shall furnish to the Company such information regarding itself, the Registrable Securities held by it, and the intended method of disposition of such securities as is reasonably required to effect the registration of such Holder's Registrable Securities.

2.6 Expenses of Registration. All expenses (other than Selling Expenses) incurred in connection with registrations, filings, or qualifications pursuant to Section 2, including all registration, filing, and qualification fees; printers' and accounting fees; fees and disbursements of counsel for the Company; and the reasonable fees and disbursements of one counsel for the selling Holders ("**Selling Holder Counsel**"), shall be borne and paid by the Company; provided, however, that the Company shall not be required to pay for any expenses of any registration proceeding begun pursuant to Section 2.1 if the registration request is subsequently withdrawn at the request of the Holders of a majority of the Registrable Securities to be registered (in which case all selling Holders shall bear such expenses pro rata based upon the number of Registrable Securities that were to be included in the withdrawn registration), unless the Holders of a majority of the Registrable Securities agree to forfeit their right to one registration pursuant to Section 2.1(a) or Section 2.1(b), as the case may be; provided further that if, at the time of such withdrawal, the Holders shall have learned of a material adverse change in

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the condition, business, or prospects of the Company from that known to the Holders at the time of their request and have withdrawn the request with reasonable promptness after learning of such information then the Holders shall not be required to pay any of such expenses and shall not forfeit their right to one registration pursuant to Section 2.1(a) or Section 2.1(b). All Selling Expenses relating to Registrable Securities registered pursuant to this Section 2 shall be borne and paid by the Holders pro rata on the basis of the number of Registrable Securities registered on their behalf.

2.7 Delay of Registration. No Holder shall have any right to obtain or seek an injunction restraining or otherwise delaying any registration pursuant to this Agreement as the result of any controversy that might arise with respect to the interpretation or implementation of this Section 2.

2.8 Indemnification. If any Registrable Securities are included in a registration statement under this Section 2:

(a) To the extent permitted by law, the Company will indemnify and hold harmless each selling Holder, and the partners, members, officers, directors, and stockholders of each such Holder; legal counsel and accountants for each such Holder; any underwriter (as defined in the Securities Act) for each such Holder; and each Person, if any, who controls such Holder or underwriter within the meaning of the Securities Act or the Exchange Act, against any Damages, and the Company will pay to each such Holder, underwriter, controlling Person, or other aforementioned Person any legal or other expenses reasonably incurred thereby in connection with investigating or defending any claim or proceeding from which Damages may result, as such expenses are incurred; provided, however, that the indemnity agreement contained in this Section 2.8(a) shall not apply to amounts paid in settlement of any such claim or proceeding if such settlement is effected without the consent of the Company, which consent shall not be unreasonably withheld, nor shall the Company be liable for any Damages to the extent that they arise out of or are based upon actions or omissions made in reliance upon and in conformity with written information furnished by or on behalf of any such Holder, underwriter, controlling Person, or other aforementioned Person expressly for use in connection with such registration.

(b) To the extent permitted by law, each selling Holder, severally and not jointly, will indemnify and hold harmless the Company, and each of its directors, each of its officers who has signed the registration statement, each Person (if any), who controls the Company within the meaning of the Securities Act, legal counsel and accountants for the Company, any underwriter (as defined in the Securities Act), any other Holder selling securities in such registration statement, and any controlling Person of any such underwriter or other Holder, against any Damages, in each case only to the extent that such Damages arise out of or are based upon actions or omissions made in reliance upon and in conformity with written information furnished by or on behalf of such selling Holder expressly for use in connection with such registration; and each such selling Holder will pay to the Company and each other aforementioned Person any legal or other expenses reasonably incurred thereby in connection with investigating or defending any claim or proceeding from which Damages may result, as such expenses are incurred; provided, however, that the indemnity agreement contained in this Section 2.8(b) shall not apply to amounts paid in settlement of any such claim or proceeding if

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such settlement is effected without the consent of the Holder, which consent shall not be unreasonably withheld; and provided further that in no event shall the aggregate amounts payable by any Holder by way of indemnity or contribution under Sections 2.8(b) and 2.8(d) exceed the proceeds from the offering received by such Holder (net of any Selling Expenses paid by such Holder), except in the case of fraud or willful misconduct by such Holder.

(c) Promptly after receipt by an indemnified party under this Section 2.8 of notice of the commencement of any action (including any governmental action) for which a party may be entitled to indemnification hereunder, such indemnified party will, if a claim in respect thereof is to be made against any indemnifying party under this Section 2.8, give the indemnifying party notice of the commencement thereof. The indemnifying party shall have the right to participate in such action and, to the extent the indemnifying party so desires, participate jointly with any other indemnifying party to which notice has been given, and to assume the defense thereof with counsel mutually satisfactory to the parties; provided, however, that an indemnified party (together with all other indemnified parties that may be represented without conflict by one counsel) shall have the right to retain one separate counsel, with the fees and expenses to be paid by the indemnifying party, if representation of such indemnified party by the counsel retained by the indemnifying party would be inappropriate due to actual or potential differing interests between such indemnified party and any other party represented by such counsel in such action.

(d) To provide for just and equitable contribution to joint liability under the Securities Act in any case in which either (i) any party otherwise entitled to indemnification hereunder makes a claim for indemnification pursuant to this Section 2.8 but it is judicially determined (by the entry of a final judgment or decree by a court of competent jurisdiction and the expiration of time to appeal or the denial of the last right of appeal) that such indemnification may not be enforced in such case, notwithstanding the fact that this Section 2.8 provides for indemnification in such case, or (ii) contribution under the Securities Act may be required on the part of any party hereto for which indemnification is provided under this Section 2.8, then, and in each such case, such parties will contribute to the aggregate losses, claims, damages, liabilities, or expenses to which they may be subject (after contribution from others) in such proportion as is appropriate to reflect the relative fault of each of the indemnifying party and the indemnified party in connection with the statements, omissions, or other actions that resulted in such loss, claim, damage, liability, or expense, as well as to reflect any other relevant equitable considerations. The relative fault of the indemnifying party and of the indemnified party shall be determined by reference to, among other things, whether the untrue or allegedly untrue statement of a material fact, or the omission or alleged omission of a material fact, relates to information supplied by the indemnifying party or by the indemnified party and the parties' relative intent, knowledge, access to information, and opportunity to correct or prevent such statement or omission; provided, however, that, in any such case, (x) no Holder will be required to

contribute any amount in excess of the public offering price of all such Registrable Securities offered and sold by such Holder pursuant to such registration statement, and (y) no Person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) will be entitled to contribution from any Person who was not guilty of such fraudulent misrepresentation; and provided further that in no event shall a Holder's liability pursuant to this Section 2.8(d), when combined with the amounts paid or payable by such Holder pursuant to Section 2.8(b), exceed the proceeds from the offering received by such Holder (net of

any Selling Expenses paid by such Holder) except in the case of willful misconduct or fraud by such Holder.

(e) Notwithstanding the foregoing, to the extent that the provisions on indemnification and contribution contained in the underwriting agreement entered into in connection with the underwritten public offering are in conflict with the foregoing provisions, the provisions in the underwriting agreement shall control.

(f) Unless otherwise superseded by an underwriting agreement entered into in connection with the underwritten public offering, the obligations of the Company and Holders under this Section 2.8 shall survive the completion of any offering of Registrable Securities in a registration under this Section 2, and otherwise shall survive the termination of this Agreement.

2.9 Reports Under Exchange Act. With a view to making available to the Holders the benefits of SEC Rule 144 and any other rule or regulation of the SEC that may at any time permit a Holder to sell securities of the Company to the public without registration or pursuant to a registration on Form S-3, the Company shall:

(a) make and keep available adequate current public information, as those terms are understood and defined in SEC Rule 144, at all times after the effective date of the registration statement filed by the Company for the IPO;

(b) use commercially reasonable efforts to file with the SEC in a timely manner all reports and other documents required of the Company under the Securities Act and the Exchange Act (at any time after the Company has become subject to such reporting requirements); and

(c) furnish to any Holder, so long as the Holder owns any Registrable Securities, forthwith upon request (i) to the extent accurate, a written statement by the Company that it has complied with the reporting requirements of SEC Rule 144 (at any time after ninety (90) days after the effective date of the registration statement filed by the Company for the IPO), the Securities Act, and the Exchange Act (at any time after the Company has become subject to such reporting requirements), or that it qualifies as a registrant whose securities may be resold pursuant to Form S-3 (at any time after the Company so qualifies); (ii) a copy of the most recent annual or quarterly report of the Company and such other reports and documents so filed by the Company; and (iii) such other information as may be reasonably requested in availing any Holder of any rule or regulation of the SEC that permits the selling of any such securities without registration (at any time after the Company has become subject to the reporting requirements under the Exchange Act) or pursuant to Form S-3 (at any time after the Company so qualifies to use such form).

2.10 Limitations on Subsequent Registration Rights. From and after the date of this Agreement, the Company shall not, without the prior written consent of the Holders of at least a majority of the Registrable Securities then outstanding, enter into any agreement with any holder or prospective holder of any securities of the Company that (i) would allow such holder or prospective holder (i) to include such securities in any registration unless, under the terms of

such agreement, such holder or prospective holder may include such securities in any such registration only to the extent that the inclusion of such securities will not reduce the number of the Registrable Securities of the Holders that are included or (ii) allow such holder or prospective holder to initiate a demand for registration of any securities held by such holder or prospective holder; provided that this limitation shall not apply to any additional Investor who becomes a party to this Agreement in accordance with Section 6.9.

2.11 "Market Stand-off" Agreement.

(a) Each Holder hereby agrees that it will not, without the prior written consent of the managing underwriter, during the period commencing on the date of the final prospectus relating to the registration by the Company for its own behalf of shares of its Common Stock or any other equity securities under the Securities Act on a registration statement on Form S-1 or Form S-3, and ending on the date specified by the Company and the managing underwriter (such period not to exceed one hundred eighty (180) days in the case of the IPO or such other period as may be requested by the Company or an underwriter to accommodate regulatory restrictions on (1) the publication or other distribution of research reports and (2) analyst recommendations and opinions, including, but not limited to, the restrictions contained in FINRA Rule 2711(f)(4) or NYSE Rule 472(f)(4), or any successor provisions or amendments thereto), (i) lend; offer; pledge; sell; contract to sell; sell any option or contract to purchase; purchase any option or contract to sell; grant any option, right, or warrant to purchase; or otherwise transfer or dispose of, directly or indirectly, any shares of Common Stock or any securities convertible into or exercisable or exchangeable (directly or indirectly) for Common Stock held immediately before the effective date of the registration statement for such offering or (ii) enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of such securities, whether any such transaction described in clause (i) or (ii) above is to be settled by delivery of Common Stock or other securities, in cash, or otherwise.

(b) Each Holder hereby agrees that it will not, without the prior written consent of the Company, during the period commencing on consummation of a Qualified Form 10 Transaction and ending on the date that is one hundred eighty (180) days after shares of the Company's Common Stock (or the shares of common stock of any parent of the Company) are listed on a National Securities Exchange (i) lend; offer; pledge; sell; contract to sell; sell any option or contract to purchase; purchase any option or contract to sell; grant any option, right, or warrant to purchase; or otherwise transfer or dispose of, directly or indirectly, any shares of Common Stock (or the shares of common stock of any parent of the Company) or any securities convertible into or exercisable or exchangeable (directly or indirectly) for Common Stock (or the shares of common stock of any parent of the Company) held immediately before the effective date of the registration statement for such offering or (ii) enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of such securities, whether any such transaction described in clause (i) or (ii) above is to be settled by delivery of Common Stock (or the shares of common stock of any parent of the Company) or other securities, in cash, or otherwise.

(c) This Subsection 2.11 shall not apply to the sale of any shares to an underwriter pursuant to an underwriting agreement, or the transfer of any shares to any trust for

the direct or indirect benefit of the Holder or the immediate family of the Holder, provided that the trustee of the trust agrees to be bound in writing by the restrictions set forth herein, and provided further that any such transfer shall not involve a disposition for value, and shall be applicable to the Holders only if all officers and directors are subject to the same restrictions. The underwriters in connection with such registration are intended third party beneficiaries of Subsection 2.11(a) and shall have the right, power, and authority to enforce the provisions hereof as though they were a party hereto. The lead placement agent and/or lead bookrunning underwriter are intended third party beneficiaries of Subsection 2.11(b) and shall have the right, power, and authority to enforce the provisions hereof as though they were a party hereto. Each Holder further agrees to execute such agreements as may be reasonably requested by the underwriters in connection with such registration that are consistent with Subsection 2.11(a) or that are necessary to give further effect thereto. Each Holder further agrees to execute such agreements as may be reasonably requested by the lead placement agent and/or lead bookrunning underwriter that are consistent with Subsection 2.11(b) or that are necessary to give further effect thereto.

#### 2.12 Restrictions on Transfer.

(a) The Preferred Stock and the Registrable Securities shall not be sold, pledged, or otherwise transferred, and the Company shall not recognize and shall issue stop-transfer instructions to its transfer agent with respect to any such sale, pledge, or transfer, except upon the conditions specified in this Agreement, which conditions are intended to ensure compliance with the provisions of the Securities Act. A transferring Holder will cause any proposed purchaser, pledgee, or transferee of the Preferred Stock and the Registrable Securities held by such Holder to agree to take and hold such securities subject to the provisions and upon the conditions specified in this Agreement.

(b) Each certificate or instrument representing (i) the Preferred Stock, (ii) the Registrable Securities, and (iii) any other securities issued in respect of the securities referenced in clauses (i) and (ii), upon any stock split, stock dividend, recapitalization, merger, consolidation, or similar event, shall (unless otherwise permitted by the provisions of Section 2.12(c)) be stamped or otherwise imprinted with a legend substantially in the following form:

THE SHARES REPRESENTED BY THIS CERTIFICATE HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AND HAVE BEEN ACQUIRED FOR INVESTMENT AND NOT WITH A VIEW TO, OR IN CONNECTION WITH, THE SALE OR DISTRIBUTION THEREOF. NO SUCH TRANSFER MAY BE EFFECTED WITHOUT AN EFFECTIVE REGISTRATION STATEMENT RELATED THERETO OR AN OPINION OF COUNSEL IN A FORM SATISFACTORY TO THE COMPANY THAT SUCH REGISTRATION IS NOT REQUIRED UNDER THE SECURITIES ACT OF 1933.

THE SECURITIES REPRESENTED HEREBY MAY BE TRANSFERRED ONLY IN ACCORDANCE WITH THE TERMS OF AN INVESTORS' RIGHTS AGREEMENT BETWEEN THE COMPANY AND THE

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STOCKHOLDER, A COPY OF WHICH IS ON FILE WITH THE SECRETARY OF THE COMPANY.

The Holders consent to the Company making a notation in its records and giving instructions to any transfer agent of the Restricted Securities in order to implement the restrictions on transfer set forth in this Section 2.12.

(c) The holder of each certificate representing Restricted Securities, by acceptance thereof, agrees to comply in all respects with the provisions of this Section 2. Before any proposed sale, pledge, or transfer of any Restricted Securities, unless there is in effect a registration statement under the Securities Act covering the proposed transaction, the Holder thereof shall give notice to the Company of such Holder's intention to effect such sale, pledge, or transfer. Each such notice shall describe the manner and circumstances of the proposed sale, pledge, or transfer in sufficient detail and, if reasonably requested by the Company, shall be accompanied at such Holder's expense by either (i) a written opinion of legal counsel who shall, and whose legal opinion shall, be reasonably satisfactory to the Company, addressed to the Company, to the effect that the proposed transaction may be effected without registration under the Securities Act; (ii) a "no action" letter from the SEC to the effect that the proposed sale, pledge, or transfer of such Restricted Securities without registration will not result in a recommendation by the staff of the SEC that action be taken with respect thereto; or (iii) any other evidence reasonably satisfactory to counsel to the Company to the effect that the proposed sale, pledge, or transfer of the Restricted Securities may be effected without registration under the Securities Act, whereupon the Holder of such Restricted Securities shall be entitled to sell, pledge, or transfer such Restricted Securities in accordance with the terms of the notice given by the Holder to the Company. The Company will not require such a legal opinion or "no action" letter (x) in any transaction in compliance with SEC Rule 144 or (y) in any transaction in which such Holder distributes Restricted Securities to an Affiliate of such Holder for no consideration; provided that each transferee agrees in writing to be subject to the terms of this Section 2.12. Each certificate or instrument evidencing the Restricted Securities transferred as above provided shall bear, except if such transfer is made pursuant to SEC Rule 144, the appropriate restrictive legend set forth in Section 2.12(b), except that such certificate shall not bear such restrictive legend if, in the opinion of counsel for such Holder and the Company, such legend is not required in order to establish compliance with any provisions of the Securities Act.

2.13 Termination of Registration Rights. The right of any Holder to request registration or inclusion of Registrable Securities in any registration pursuant to Section 2.1 or Section 2.2 shall terminate upon the earliest to occur of:

- (a) the closing of a Deemed Liquidation Event, as such term is defined in the Company's Certificate of Incorporation;
- (b) such time as Rule 144 or another similar exemption under the Securities Act is available for the sale of all of such Holder's shares without limitation during a three-month period without registration; and
- (c) the fifth anniversary of the IPO.

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### 3. Information and Observer Rights.

3.1 Delivery of Financial Statements. If requested, the Company shall deliver to each Investor:

(a) as soon as practicable, but in any event within one hundred eighty (180) days after the end of each fiscal year of the Company, (i) a balance sheet as of the end of such year, (ii) statements of income and of cash flows for such year, and a comparison between (x) the actual amounts as of and for such fiscal year and (y) the comparable amounts for the prior year and as included in the Budget (as defined in Section 3.1(d)) for such year, with an explanation of any material differences between such amounts and a schedule as to the sources and applications of funds for such year, and (iii) a statement of stockholders' equity as of the end of such year, all such financial statements audited and certified by independent public accountants of nationally recognized standing selected by the Company;

(b) as soon as practicable, but in any event within forty-five (45) days after the end of each of the first three (3) quarters of each fiscal year of the Company, unaudited statements of income and of cash flows for such fiscal quarter, and an unaudited balance sheet and a statement of stockholders' equity as of the end of such fiscal quarter, all prepared in accordance with GAAP (except that such financial statements may (i) be subject to normal year-end audit adjustments and (ii) not contain all notes thereto that may be required in accordance with GAAP);

(c) as soon as practicable, but in any event within forty-five (45) days after the end of each of the first three (3) quarters of each fiscal year of the Company, a statement showing the number of shares of each class and series of capital stock and securities convertible into or exercisable for shares of capital stock outstanding at the end of the period, the Common Stock issuable upon conversion or exercise of any outstanding securities convertible or exercisable for Common Stock and the exchange ratio or exercise price applicable thereto, and the number of shares of issued stock options and stock options not yet issued but reserved for issuance, if any, all in sufficient detail as to permit the Investors to calculate their respective percentage equity ownership in the Company, and certified by the chief financial officer or chief executive officer of the Company as being true, complete, and correct;

(d) as soon as practicable, but in any event within thirty (30) days of the end of each fiscal year, a budget and business plan for the next fiscal year (collectively, the "**Budget**"), approved by the Board of Directors and prepared on a quarterly basis, including balance sheets, income statements, and statements of cash flow for such months and, promptly after prepared, any other budgets or revised budgets prepared by the Company; and

(e) with respect to the financial statements called for in Section 3.1(a) and Section 3.1(b), an instrument executed by the chief financial officer and chief executive officer of the Company certifying that such financial statements were prepared in accordance with GAAP consistently applied with prior practice for earlier periods (except as otherwise set forth in Section 3.1(b)) and fairly present the financial condition of the Company and its results of operation for the periods specified therein.

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If, for any period, the Company has any subsidiary whose accounts are consolidated with those of the Company, then in respect of such period the financial statements delivered pursuant to the foregoing sections shall be the consolidated and consolidating financial statements of the Company and all such consolidated subsidiaries.

Notwithstanding anything else in this Section 3.1 to the contrary, the Company may cease providing the information set forth in this Section 3.1 during the period starting with the date sixty (60) days before the Company's good-faith estimate of the date of filing of a registration statement if it reasonably concludes it must do so to comply with the SEC rules applicable to such registration statement and related offering; provided that the Company's covenants under this Section 3.1 shall be reinstated at such time as the Company is no longer actively employing its commercially reasonable efforts to cause such registration statement to become effective.

3.2 Observer Rights. As long as EcoR1 Capital Fund, L.P. owns not less than twenty-five percent (25%) of the shares of the Preferred Stock originally purchased by it (or an equivalent amount of Common Stock issued upon conversion thereof), the Company shall invite a representative of EcoR1 Capital Fund, L.P. to attend all meetings of its Board of Directors in a nonvoting observer capacity and, in this respect, shall give such representative copies of all notices, minutes, consents, and other materials that it provides to its directors; provided, however, that such representative shall agree to hold in confidence and trust and to act in a fiduciary manner with respect to all information so provided; and provided further, that the Company reserves the right to withhold any information and to exclude such representative from any meeting or portion thereof if access to such information or attendance at such meeting could adversely affect the attorney-client privilege between the Company and its counsel or result in disclosure of trade secrets or a conflict of interest, or if such Investor or its representative is a competitor of the Company.

3.3 Inspection. The Company shall permit each Investor (provided that the Board of Directors has not reasonably determined that such Investor is a competitor of the Company), at such Investor's expense, to visit and inspect the Company's properties and discuss the Company's affairs, finances, and accounts with its officers, during normal business hours of the Company as may be reasonably requested by the Investor; provided, however, that the Company shall not be obligated pursuant to this Section 3.3 to provide access to any information that it reasonably and in good faith considers to be a trade secret or confidential information (unless covered by an enforceable confidentiality agreement, in form acceptable to the Company) or the disclosure of which would adversely affect the attorney-client privilege between the Company and its counsel.

3.4 Termination of Information and Observer Rights. The covenants set forth in Section 3.1, Section 3.2 and Section 3.3 shall terminate and be of no further force or effect (i) immediately before the consummation of the IPO, (ii) when the Company first becomes subject to the periodic reporting requirements of Section 12(g) or 15(d) of the Exchange Act, (iii) upon a Deemed Liquidation Event, as such term is defined in the Company's Certificate of Incorporation, whichever event occurs first, or (iv) immediately before the consummation of the Qualified Form 10 Transaction.

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3.5 Confidentiality. Each Investor agrees that such Investor will keep confidential and will not disclose, divulge, or use for any purpose (other than to monitor its investment in the Company) any confidential information obtained from the Company pursuant to the terms of this Agreement (including notice of the Company's intention to file a registration statement), unless such confidential information (a) is known or becomes known to the public in general (other than as a result of a breach of this Section 3.4 by such Investor), (b) is or has been independently developed or conceived by the Investor without use of the Company's confidential information, or (c) is or has been made known or disclosed to the Investor by a third party without a breach of any obligation of confidentiality such third party may have to the Company; provided, however, that an Investor may disclose confidential information (i) to its attorneys, accountants, consultants, and other professionals to the extent necessary to obtain their services in connection with monitoring its investment in the Company; (ii) to any prospective purchaser of any Registrable Securities from such Investor, if such prospective purchaser agrees to be bound by the provisions of this Section 3.4; (iii) to any Affiliate, partner, member, stockholder, or wholly owned subsidiary of such Investor in the ordinary course of business, provided that such Investor informs such Person that such information is confidential and directs such Person to maintain the confidentiality of such information; or (iv) as may otherwise be required by law, provided that the Investor promptly notifies the Company of such disclosure and takes reasonable steps to minimize the extent of any such required disclosure.

#### 4. Rights to Future Stock Issuances.

4.1 Right of First Offer. Subject to the terms and conditions of this Section 4.1 and applicable securities laws, if the Company proposes to offer or sell any New Securities, the Company shall first offer such New Securities to each Investor. An Investor shall be entitled to apportion the right of first offer hereby granted to it among itself and its Affiliates in such proportions as it deems appropriate.

(a) The Company shall give notice (the “**Offer Notice**”) to each Investor, stating (i) its bona fide intention to offer such New Securities, (ii) the number of such New Securities to be offered, and (iii) the price and terms, if any, upon which it proposes to offer such New Securities.

(b) By notification to the Company within twenty (20) days after the Offer Notice is given, each Investor may elect to purchase or otherwise acquire, at the price and on the terms specified in the Offer Notice, up to that portion of such New Securities which equals the proportion that the Common Stock issued and held, or issuable (directly or indirectly) upon conversion and/or exercise, as applicable, of the Preferred Stock and any other Derivative Securities then held, by such Investor bears to the total Common Stock of the Company then outstanding (assuming full conversion and/or exercise, as applicable, of all Preferred Stock and other Derivative Securities). At the expiration of such twenty (20) day period, the Company shall promptly notify each Investor that elects to purchase or acquire all the shares available to it (each, a “**Fully Exercising Investor**”) of any other Investor’s failure to do likewise. During the ten (10) day period commencing after the Company has given such notice, each Fully Exercising Investor may, by giving notice to the Company, elect to purchase or acquire, in addition to the number of shares specified above, up to that portion of the New Securities for which Investors were entitled to subscribe but that were not subscribed for by the Investors which is equal to the

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proportion that the Common Stock issued and held, or issuable (directly or indirectly) upon conversion and/or exercise, as applicable, of Preferred Stock and any other Derivative Securities then held, by such Fully Exercising Investor bears to the Common Stock issued and held, or issuable (directly or indirectly) upon conversion and/or exercise, as applicable, of the Preferred Stock and any other Derivative Securities then held, by all Fully Exercising Investors who wish to purchase such unsubscribed shares. The closing of any sale pursuant to this Section 4.1(b) shall occur within the later of one hundred and twenty (120) days of the date that the Offer Notice is given and the date of initial sale of New Securities pursuant to Section 4.1(c).

(c) If all New Securities referred to in the Offer Notice are not elected to be purchased or acquired as provided in Section 4.1(b), the Company may, during the ninety (90) day period following the expiration of the periods provided in Section 4.1(b), offer and sell the remaining unsubscribed portion of such New Securities to any Person or Persons at a price not less than, and upon terms no more favorable to the offeree than, those specified in the Offer Notice. If the Company does not enter into an agreement for the sale of the New Securities within such period, or if such agreement is not consummated within thirty (30) days of the execution thereof, the right provided hereunder shall be deemed to be revived and such New Securities shall not be offered unless first reoffered to the Investors in accordance with this Section 4.1.

(d) The right of first offer in this Section 4.1 shall not be applicable to (i) Exempted Securities (as defined in the Company’s Certificate of Incorporation); (ii) shares of Common Stock issued in the IPO; and (iii) the issuance of shares of Series B Preferred Stock pursuant to the Purchase Agreement.

(e) Notwithstanding any provision hereof to the contrary, in lieu of complying with the provisions of this Section 4.1, the Company may elect to give notice to the Investors within thirty (30) days after the issuance of New Securities. Such notice shall describe the type, price, and terms of the New Securities. Each Investor shall have twenty (20) days from the date notice is given to elect to purchase up to the number of New Securities that would, if purchased by such Investor, maintain such Investor’s percentage-ownership position, calculated as set forth in Subsection 4.1(b) before giving effect to the issuance of such New Securities. The closing of such sale shall occur within sixty (60) days of the date notice is given to the Investors.

4.2 Termination. The covenants set forth in Section 4.1 shall terminate and be of no further force or effect (i) immediately before the consummation of the IPO, (ii) when the Company first becomes subject to the periodic reporting requirements of Section 12(g) or 15(d) of the Exchange Act, (iii) upon a Deemed Liquidation Event, as such term is defined in the Company’s Certificate of Incorporation, or (iv) immediately before the consummation of the Qualified Form 10 Transaction, whichever event occurs first.

#### 5. Additional Covenants.

5.1 Employee Agreements. The Company will cause (i) each person now or hereafter employed by it or by any subsidiary (or engaged by the Company or any subsidiary as a consultant/independent contractor) with access to confidential information and/or trade secrets to enter into a nondisclosure and proprietary rights assignment agreement and (ii) each Key

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Employee to enter into a one (1) year noncompetition and nonsolicitation agreement. In addition, the Company shall not amend, modify, terminate, waive, or otherwise alter, in whole or in part, any of the above-referenced agreements or any restricted stock agreement between the Company and any employee, without the prior approval of the Board of Directors including at least one of the Preferred Directors.

5.2 Employee Stock. Unless otherwise approved by the Board of Directors, all future employees and consultants of the Company who purchase, receive options to purchase, or receive awards of shares of the Company’s capital stock after the date hereof shall be required to execute restricted stock or option agreements, as applicable, providing for (i) vesting of shares over a four (4) year period, with the first twenty-five percent (25%) of such shares vesting following twelve (12) months of continued employment or service, and the remaining shares vesting in equal monthly installments over the following thirty-six (36) months, and (ii) a market stand-off provision substantially similar to that in Section 2.11. In addition, unless otherwise approved by the Board of Directors, the Company shall retain a “right of first refusal” on employee transfers until the Company’s IPO and shall have the right to repurchase unvested shares at cost upon termination of employment of a holder of restricted stock.

5.3 Matters Requiring Investor Director Approval. So long as the holders of Preferred Stock are entitled to elect the Preferred Directors, the Company hereby covenants and agrees with each of the Investors that it shall not, without approval of the Board of Directors, which approval must include the affirmative vote of at least one of the Preferred Directors (except with respect to clause (e) below, which shall require the affirmative vote of both Preferred Directors):



(a) make, or permit any subsidiary to make, any loan or advance to, or own any stock or other securities of, any subsidiary or other corporation, partnership, or other entity unless it is wholly owned by the Company;

(b) make, or permit any subsidiary to make, any loan or advance to any Person, including, without limitation, any employee or director of the Company or any subsidiary, except advances and similar expenditures in the ordinary course of business or under the terms of an employee stock or option plan approved by the Board of Directors;

(c) guarantee, directly or indirectly, or permit any subsidiary to guarantee, directly or indirectly, any indebtedness except for trade accounts of the Company or any subsidiary arising in the ordinary course of business;

(d) make any investment other than investments in prime commercial paper, money market funds, certificates of deposit in any United States bank having a net worth in excess of \$100,000,000 or obligations issued or guaranteed by the United States of America, in each case having a maturity not in excess of two years;

(e) otherwise enter into or be a party to any transaction with any director, officer, employee or stockholders of the Company or any “associate” (as defined in Rule 12b-2 promulgated under the Exchange Act) of any such Person;

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(f) hire, terminate, or change the compensation of the executive officers, including approving an option grants; or

(g) sell, assign, license, pledge, or encumber material technology or intellectual property, other than licenses granted in the ordinary course of business; or

(h) enter into any corporate strategic relationship involving the payment, contribution or assignment by the Company or to the Company of assets greater than \$500,000.

5.4 **Board Matters.** Unless otherwise determined by the vote of a majority of the directors then in office, the Board of Directors shall meet at least quarterly in accordance with an agreed-upon schedule. The Company shall reimburse the directors for all reasonable out-of-pocket travel expenses incurred (consistent with the Company’s travel policy) in connection with attending meetings of the Board of Directors. The Company will maintain, an audit and compensation committee.

5.5 **Successor Indemnification.** If the Company or any of its successors or assignees consolidates with or merges into any other Person and is not the continuing or surviving corporation or entity of such consolidation or merger, then to the extent necessary, proper provision shall be made so that the successors and assignees of the Company assume the obligations of the Company with respect to indemnification of members of the Board of Directors as in effect immediately before such transaction, whether such obligations are contained in the Company’s Bylaws, its Certificate of Incorporation, or elsewhere, as the case may be.

5.6 **Insurance.** The Company shall use its commercially reasonable efforts to obtain, within thirty (30) days of the date hereof, from financially sound and reputable insurers Directors and Officers liability insurance in an amount and on terms and conditions satisfactory to the Board of Directors, and will use commercially reasonable efforts to cause such insurance policies to be maintained until such time as the Board of Directors determines that such insurance should be discontinued. The Directors and Officers liability insurance shall not be cancelable by the Company without prior approval by the Board of Directors including both Preferred Directors.

5.7 **Indemnification Matters.** The Company hereby acknowledges that one (1) or more of the directors nominated to serve on the Board of Directors by the Investors (each a “**Fund Director**”) may have certain rights to indemnification, advancement of expenses and/or insurance provided by one or more of the Investors and certain of their affiliates (collectively, the “**Fund Indemnitors**”). The Company hereby agrees (a) that it is the indemnitor of first resort (i.e., its obligations to any such Fund Director are primary and any obligation of the Fund Indemnitors to advance expenses or to provide indemnification for the same expenses or liabilities incurred by such Fund Director are secondary), (b) that it shall be required to advance the full amount of expenses incurred by such Fund Director and shall be liable for the full amount of all expenses, judgments, penalties, fines and amounts paid in settlement by or on behalf of any such Fund Director to the extent legally permitted and as required by the

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Company’s Certificate of Incorporation or Bylaws of the Company (or any agreement between the Company and such Fund Director), without regard to any rights such Fund Director may have against the Fund Indemnitors, and, (c) that it irrevocably waives, relinquishes and releases the Fund Indemnitors from any and all claims against the Fund Indemnitors for contribution, subrogation or any other recovery of any kind in respect thereof. The Company further agrees that no advancement or payment by the Fund Indemnitors on behalf of any such Fund Director with respect to any claim for which such Fund Director has sought indemnification from the Company shall affect the foregoing and the Fund Indemnitors shall have a right of contribution and/or be subrogated to the extent of such advancement or payment to all of the rights of recovery of such Fund Director against the Company.

5.8 **Right to Conduct Activities.** The Company hereby agrees and acknowledges that the Investors together with their affiliates are professional investment funds, and as such invest in numerous portfolio companies, some of which may be deemed competitive with the Company’s business (as currently conducted or as currently propose to be conducted). The Company hereby agrees that, to the extent permitted under applicable law, the Investors shall not be liable to the Company for any claim arising out of, or based upon, (i) the investment by the Investors in any entity competitive with the Company, or (ii) actions taken by any partner, officer or other representative of the Investors to assist any such competitive company, whether or not such action was taken as a member of the board of directors of such competitive company or otherwise, and whether or not such action has a detrimental effect on the Company; provided, however, that the foregoing shall not relieve (x) any of the Investors from liability associated with the unauthorized disclosure of the Company’s confidential information obtained pursuant to this Agreement, or (y) any director or officer of the Company from any liability associated with his or her fiduciary duties to the Company.

5.9 **Qualified Small Business Stock.** The Company shall use commercially reasonable efforts to cause the shares of Preferred Stock, as well as any shares into which such shares are converted, within the meaning of Section 1202(f) of the Internal Revenue Code (the “Code”), to constitute “qualified small business stock” as defined in Section 1202(c) of the Code; provided, however, that such requirement shall not be applicable if the Board of Directors of the Company determines, in its good-faith business judgment, that such qualification is inconsistent with the best interests of the Company. The Company shall submit to its stockholders (including the Investors) and to the Internal Revenue Service any reports that may be required under Section 1202(d)(1)(C) of the Code and the regulations promulgated thereunder. In addition, within twenty (20) business days after any Investor’s written request therefor, the Company shall, at its option,

either (i) deliver to such Investor a written statement indicating whether (and what portion of) such Investor's interest in the Company constitutes "qualified small business stock" as defined in Section 1202(c) of the Code or (ii) deliver to such Investor such factual information in the Company's possession as is reasonably necessary to enable such Investor to determine whether (and what portion of) such Investor's interest in the Company constitutes "qualified small business stock" as defined in Section 1202(c) of the Code.

5.10 Market Stand-off. The Company shall include a "Market Stand off" provision containing terms substantially similar to those set forth in Section 2.11 in each option agreement entered into pursuant to any equity incentive plan of the Company.

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5.11 Termination of Covenants. The covenants set forth in this Section 5, except for Section 5.5, shall terminate and be of no further force or effect (i) immediately before the consummation of the IPO, (ii) when the Company first becomes subject to the periodic reporting requirements of Section 12(g) or 15(d) of the Exchange Act, (iii) upon a Deemed Liquidation Event, as such term is defined in the Company's Certificate of Incorporation, (iv) immediately before the consummation of the Qualified Form 10 Transaction, whichever event occurs first.

## 6. Miscellaneous.

6.1 Successors and Assigns. The rights under this Agreement may be assigned (but only with all related obligations) by a Holder to a transferee of Registrable Securities that (i) is an Affiliate of a Holder; (ii) is a Holder's Immediate Family Member or trust for the benefit of an individual Holder or one or more of such Holder's Immediate Family Members; or (iii) after such transfer, holds at least five percent (5%) of such Holder's Registrable Securities; provided, however, that (x) the Company is, within a reasonable time after such transfer, furnished with written notice of the name and address of such transferee and the Registrable Securities with respect to which such rights are being transferred; and (y) such transferee agrees in a written instrument delivered to the Company to be bound by and subject to the terms and conditions of this Agreement, including the provisions of Section 2.11. For the purposes of determining the number of shares of Registrable Securities held by a transferee, the holdings of a transferee (1) that is an Affiliate or stockholder of a Holder; (2) who is a Holder's Immediate Family Member; or (3) that is a trust for the benefit of an individual Holder or such Holder's Immediate Family Member shall be aggregated together and with those of the transferring Holder; provided further that all transferees who would not qualify individually for assignment of rights shall have a single attorney-in-fact for the purpose of exercising any rights, receiving notices, or taking any action under this Agreement. The terms and conditions of this Agreement inure to the benefit of and are binding upon the respective successors and permitted assignees of the parties. Nothing in this Agreement, express or implied, is intended to confer upon any party other than the parties hereto or their respective successors and permitted assignees any rights, remedies, obligations or liabilities under or by reason of this Agreement, except as expressly provided herein.

6.2 Governing Law. This Agreement and any controversy arising out of or relating to this Agreement shall be governed by and construed in accordance with the General Corporation Law of the State of Delaware as to matters within the scope thereof, and as to all other matters shall be governed by and construed in accordance with the internal laws of the Commonwealth of Massachusetts, without regard to conflict of law principles that would result in the application of any law other than the law of the Commonwealth of Massachusetts.

6.3 Counterparts; Facsimile. This Agreement 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. This Agreement may also be executed and delivered by facsimile signature and 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.

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6.4 Titles and Subtitles. The titles and subtitles used in this Agreement are for convenience only and are not to be considered in construing or interpreting this Agreement.

6.5 Notices. All notices and other communications given or made pursuant to this Agreement shall be in writing and shall be deemed effectively given upon the earlier of actual receipt or: (i) personal delivery to the party to be notified; (ii) when sent, if sent by electronic mail or facsimile during the recipient's normal business hours, and if not sent during normal business hours, then on the recipient's next business day; (iii) five (5) days after having been sent by registered or certified mail, return receipt requested, postage prepaid; or (iv) one (1) business day after the business day of deposit with a nationally recognized overnight courier, freight prepaid, specifying next-day delivery, with written verification of receipt. All communications shall be sent to the respective parties at their addresses as set forth on Schedule A or Schedule B (as applicable) hereto, or to the principal office of the Company and to the attention of the Chief Executive Officer, in the case of the Company, or to such email address, facsimile number, or address as subsequently modified by written notice given in accordance with this Section 6.5. If notice is given to the Company, a copy shall also be sent Cooley LLP, 500 Boylston Street, Boston, MA 02116, Attn: Lester J. Fagen, Esq., and if notice is given to the Investors, a copy shall also be given to each of Sills Cummis & Gross PC, One Riverfront Plaza, Newark, NJ 07102, Attn: Steven Kamen, Esq. and Lowenstein Sandler LLP, 1251 Avenue of the Americas, New York, NY 10020, Attn: Anthony O. Pergola.

6.6 Amendments and Waivers. Any term of this Agreement may be amended and the observance of any term of this Agreement may be waived (either generally or in a particular instance, and either retroactively or prospectively) only by a written instrument executed by (a) the Company, (b) holders of sixty-two percent (62%) shares of Common Stock issued or issuable upon conversion of the shares of Series A Preferred Stock held by the Investors (voting as a single class and on an as-converted basis), (c) holders of sixty percent (60%) shares of Common Stock issued or issuable upon conversion of the shares of Series B Preferred Stock held by the Investors (voting as a single class and on an as-converted basis), and (d) Key Holders holding a majority of the Common Stock then held by the Key Holders; provided that the Company may in its sole discretion waive compliance with Section 2.12(c) (and the Company's failure to object promptly in writing after notification of a proposed assignment allegedly in violation of Section 2.12(c) shall be deemed to be a waiver); and provided further that any provision hereof may be waived by any waiving party on such party's own behalf, without the consent of any other party provided, further that Section 3.2 shall not be amended without the prior written consent of EcoR1 Capital Fund, L.P. Notwithstanding the foregoing, this Agreement may not be amended or terminated and the observance of any term hereof may not be waived with respect to any Investor without the written consent of such Investor, unless such amendment, termination, or waiver applies to all Investors in the same fashion (it being agreed that a waiver of the provisions of Section 4 with respect to a particular transaction shall be deemed to apply to all Investors in the same fashion if such waiver does so by its terms, notwithstanding the fact that certain Investors may nonetheless, by agreement with the Company, purchase securities in such transaction). Any amendment, termination, or waiver effected in accordance with this Section 6.6 shall be binding on all parties hereto, regardless of whether any such party has consented thereto. No waivers of or exceptions to any term, condition, or provision of this Agreement, in any one or more instances, shall be deemed to be or construed as a further or continuing waiver of any such term, condition, or provision.

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6.7 Severability. In case any one or more of the provisions contained in this Agreement is for any reason held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality, or unenforceability shall not affect any other provision of this Agreement, and such invalid, illegal, or unenforceable provision shall be reformed and construed so that it will be valid, legal, and enforceable to the maximum extent permitted by law.

6.8 Aggregation of Stock. All shares of Registrable Securities held or acquired by Affiliates shall be aggregated together for the purpose of determining the availability of any rights under this Agreement and such Affiliated persons may apportion such rights as among themselves in any manner they deem appropriate.

6.9 Additional Investors. Notwithstanding anything to the contrary contained herein, if the Company issues additional shares of the Company's Preferred Stock after the date hereof, whether pursuant to the Purchase Agreement or otherwise, any purchaser of such shares of Preferred Stock may become a party to this Agreement by executing and delivering an additional counterpart signature page to this Agreement, and thereafter shall be deemed an "Investor" for all purposes hereunder. No action or consent by the Investors shall be required for such joinder to this Agreement by such additional Investor, so long as such additional Investor has agreed in writing to be bound by all of the obligations as an "Investor" hereunder.

6.10 Entire Agreement. This Agreement (including any Schedules and Exhibits hereto) constitutes the full and entire understanding and agreement among the parties with respect to the subject matter hereof, and any other written or oral agreement relating to the subject matter hereof existing between the parties is expressly canceled.

6.11 Dispute Resolution. The parties (a) hereby irrevocably and unconditionally submit to the jurisdiction of the federal and state courts located within the geographic boundaries of the United States District Court for the District of Massachusetts for the purpose of any suit, action or other proceeding arising out of or based upon this Agreement, (b) agree not to commence any suit, action or other proceeding arising out of or based upon this Agreement except in the federal and state courts located within the geographic boundaries of the United States District Court for the District of Massachusetts, and (c) hereby waive, and agree not to assert, by way of motion, as a defense, or otherwise, in any such suit, action or proceeding, any claim that it is not subject personally to the jurisdiction of the above-named courts, that its property is exempt or immune from attachment or execution, that the suit, action or proceeding is brought in an inconvenient forum, that the venue of the suit, action or proceeding is improper or that this Agreement or the subject matter hereof may not be enforced in or by such court.

6.12 Delays or Omissions. No delay or omission to exercise any right, power, or remedy accruing to any party under this Agreement, upon any breach or default of any other party under this Agreement, shall impair any such right, power, or remedy of such nonbreaching or nondefaulting party, nor shall it be construed to be a waiver of or acquiescence to any such breach or default, or to any similar breach or default thereafter occurring, nor shall any waiver of any single breach or default be deemed a waiver of any other breach or default theretofore or thereafter occurring. All remedies, whether under this Agreement or by law or otherwise afforded to any party, shall be cumulative and not alternative.

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6.13 Amendment and Restatement. Effective upon the execution of this Agreement by the (a) the Company, (b) the holders of at least sixty-two percent (62%) of the shares of Common Stock issued or issuable upon conversion of the shares of Series A Preferred Stock held by the Investors (voting as a single class and on an as-converted basis), and (c) Key Holders holding a majority of the Common Stock then held by the Key Holders, the parties completely and irrevocably waive any and all application of the Prior Agreement, and acknowledge that the Prior Agreement is hereby amended and restated to read in its entirety as set forth in this Agreement.

*[Signature Page Follows]*

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IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

**FLEX PHARMA, INC.**

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

**KEY HOLDERS:**

Signature: \_\_\_\_\_  
Name: \_\_\_\_\_

**INVESTORS:**

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

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**SCHEDULE A**

**INVESTORS**

**Name and Address**

Longwood Fund II, L.P.  
800 Boylston St, Suite 1555  
Boston, MA 02199

EcoR1 Capital Fund, L.P.  
EcoR1 Capital Fund Qualified, L.P./c/o EcoR1 Capital, LLC  
409 Illinois Street  
San Francisco, CA 94158

Bessemer Venture Partners VIII L.P.  
Bessemer Venture Partners VIII Institutional L.P.  
c/o Bessemer Venture Partners  
1865 Palmer Avenue  
Suite 104  
Larchmont, NY 10538  
Tel. 914-833-5300  
Transactions@bvp.com

Dan Gold  
c/o QVT Financial LP  
1177 Avenue of the Americas  
9th Floor  
New York, NY, 10036

Sculley Gibbs I, LLC  
903 Captains Way  
Jupiter, FL 33477

Todd A. Dagres 1999 Revocable Trust  
c/o Spark Capital  
137 Newbury St, 8th Floor  
Boston, MA 02116

Roger Tung  
c/o Concert Pharmaceuticals, Inc.  
99 Hayden Avenue, Suite 500  
Lexington, MA 02421

John Maraganore  
c/o Alnylam Pharmaceuticals  
300 Third Street, 3rd Floor  
Cambridge, MA 02142

Wyc Grousbeck  
41 Skating Pond Road  
Weston, MA 02493

Michael Lafkas  
217 Covina Ave  
Long Beach, CA 90803

Paul Fuhrman  
c/o ColonyCapital, LLC  
2450 Broadway, 6th Floor  
Santa Monica, CA 90404

Peter Barton Hutt  
c/o Covington & Burling LLP  
1201 Pennsylvania Avenue, NW  
Washington, DC 20004

Christopher Walsh  
c/o Hemenway & Barnes LLP  
Attn: Brian C. Broderick  
60 State Street  
Boston, MA 02109

Mark Wan  
c/o Three Arch Partners

3200 Alpine Road  
Portola Valley, CA 94028

PagsGroup LLC  
29 Webster Road  
Weston, MA 02493

City Hill Venture Partners I, LLC  
11575 Sorrento Valley Road, Suite 200  
San Diego, CA 92121

Richard Gibbs  
5 Old Woods Drive  
Harrison, NY 10528

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Jennison Global Healthcare Master Fund, Ltd.  
c/o Jennison Associates LLC  
466 Lexington Avenue  
New York, New York 10017  
ATTN: Legal Department

Alexandria Equities, LLC  
385 E. Colorado Blvd.  
Suite 299  
Pasadena, CA 91101

CD-Venture GmbH  
Bergheimer Straße 45  
69115 Heidelberg, Germany

Double J Capital LLC  
26 Peirce Road  
Wellesley, MA 02481

William A. Sahlman  
c/o Harvard Business School  
Soldiers Field Station  
Rock Center 318  
Boston, MA 02163

Jonathan Seelig Revocable Trust  
6 Longfellow Park  
Cambridge, MA 02138

SB Vermoögensverwaltungs KG  
c/o Harald F. Stock, PhD., SB  
Vermögensverwaltungs KG  
Philosophenweg 11, D-69120  
Heidelberg, Germany

Lawrence Summers  
207 Fisher Avenue  
Brookline, MA 02445

Robert Steven Kaplan  
6 Arlington Street, Apt. #4  
Boston, MA 02116

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The Lynch Foundation  
c/o Peter S. Lynch  
Fidelity Investments  
82 Devonshire Street  
Mail Zone S4A  
Boston, MA 02109

Peter S. and Carolyn A. Lynch, JTWROS  
c/o Peter S. Lynch  
Fidelity Investments  
82 Devonshire Street  
Mail Zone S4A  
Boston, MA 02109

Richard Beleson and Kim Lam Beleson October 1999 Living Trust

c/o Richard Beleson  
1750 Taylor Street, Unit 302  
San Francisco, CA 94133

Richard Y. Woo  
7 Mead Circle  
Lexington, MA 02420

Lightstone Ventures, L.P.  
Lightstone Ventures (A), L.P.  
500 Boylston Street  
Suite 1380  
Boston, MA 02116

KPC Venture Capital LLC  
c/o The Kraft Group  
1 Patriot Place  
Foxborough, MA 02035  
Attn: William Scalzulli

The Stephen J. Hoffman 2009 Revocable Trust  
Attn: Stephen Hoffman  
c/o PDL BioPharma  
303 Wyman Street, Suite 300  
Waltham, MA 02451

Bindley Capital Investors, LLC  
8909 Purdue Road, Suite 500  
Indianapolis, IN 46268

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Paul D. Enderle  
c/o BayCross Capital Group, LLC  
75 Arlington Street, 5<sup>th</sup> Floor  
Boston, MA 02116

Correlation Ventures, L.P.  
9255 Towne Centre Drive, Suite 350  
San Diego, CA 92121  
Attn: Grace Chui-Miller, CFO

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**SCHEDULE B**

**KEY HOLDERS**

**Name and Address**

Christoph Westphal  
17 Hawes Street  
Brookline, MA 02446

Rich Aldrich  
26 Beech Rd.  
Brookline, MA 02446

Michelle Dipp  
505 Tremont St., Unit 702  
Boston, MA 02116

Bruce Bean  
20 Locke Road  
Waban, MA 02468

Donald MacKinnon  
305 East 85th St. Apt 17A  
New York, NY 10028

Roderick MacKinnon  
504 East 63rd Street, Apt 33M  
New York, NY 10065



## ROYALTY AGREEMENT

**THIS ROYALTY AGREEMENT** (the “**Agreement**”) is entered into as of March 20, 2014 (the “**Effective Date**”), by and between **FLEX PHARMA, INC.**, a Delaware corporation, having offices at Prudential Tower, 800 Boylston Street, c/o Longwood Fund, Boston, MA 02199 (the “**Company**”), Bruce Bean, an individual with an address of 20 Locke Road, Waban, MA 02468 (“**Bean**”), Donald MacKinnon, an individual with an address of 305 East 85th St. Apt 17A, New York, NY 10028 (“**D. MacKinnon**”), Roderick MacKinnon, an individual with an address of 504 East 63rd Street, Apt 33M, New York, NY 10065 (“**R. MacKinnon**,” and together with Bean and D. MacKinnon, the “**Scientific Founders**”) and Christoph Westphal, an individual with an address of 17 Hawes Street, Brookline, MA 02446 (“**Westphal**,” and together with the Scientific Founders, the “**Founders**”). Each of Company, Bean, D. MacKinnon, R. MacKinnon and Westphal may be referred to in this Agreement as a “**Party**” and collectively as the “**Parties**.”

WHEREAS, pursuant to that certain Founders Agreement between Westphal on behalf of the Company and the Scientific Founders dated as of February 25, 2014 (the “**Founders Agreement**”) and in consideration for the mutual covenants set forth in the Founders Agreement, and the agreements executed pursuant thereto, including, without limitation, that certain Patent Assignment Agreement dated March 20, 2014, and that certain Technology Assignment Agreement dated March 20, 2014 (collectively, the “**Assignment Agreements**”), the Company agreed to pay the Founders certain royalty payments in accordance with the terms and conditions of this Agreement;

WHEREAS, the Founders have agreed to allocate among themselves certain economic interests in the Company including the issuance of shares of capital stock in the Company and the granting of the royalties provided in this Agreement; and

WHEREAS, the Founders have agreed to provide services to the Company pursuant to the terms of their agreements with the Company and to transfer to the Company intellectual property related to the Company’s business that might be developed in connection with such services (the “**Future Intellectual Property**”);

NOW, THEREFORE, in consideration of the foregoing premises and the covenants and promises set forth below and in the Founders Agreement, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties, intending to be legally bound, agree as follows:

## 1. DEFINITIONS

**1.1 “Affiliate”** with respect to any entity, shall mean any company or entity controlled by, controlling, or under common control with such referenced entity and shall include any company more than 50% of whose voting stock or participating profit interest is owned or controlled, directly or indirectly, by such referenced entity, and any company which owns or controls, directly or indirectly, more than fifty percent (50%) of the voting stock of such entity.

**1.2 “Gross Sales”** shall mean the gross amount invoiced by the Company or its Affiliates or Licensees for sales of a Product to Third Parties, including sales to distributors.

**1.3 “Licensee”** shall mean any person or entity that licenses or sublicenses intellectual property (including any know-how) or other material assets or rights from the Company or an Affiliate of the Company to develop, manufacture, or sell products used in the treatment of any neuromuscular disorders, including any anti-cramp products.

**1.4 “Product”** shall mean, except as provided below, (a) any and all products sold by the Company and its Affiliates for use in the treatment of any neuromuscular disorders, including any anti-cramp products, that use, incorporate or embody (or are made using) any intellectual property (including any know-how) or other material assets that are or were owned by or licensed to the Company and (b) any and all products sold by a Licensee for use in the treatment of any neuromuscular disorders, including any anti-cramp products, that use, incorporate or embody (or are made using) any intellectual property (including any know-how) or other material assets that were owned by or licensed to the Company and licensed from the Company or any of its Affiliates to such Licensee.

**1.5 “Third Party”** shall mean any person or entity other than the Company, the Company’s Affiliates or the Founders.

## 2. ROYALTY

**2.1 Royalty.** Within forty-five (45) days after the end of each calendar quarter during which Products are sold commercially, the Company shall pay to each Founder a royalty at the rate set forth opposite the applicable Founder’s name below on Gross Sales of Products during such calendar quarter:

Founder	Royalty Rate
Bean	1/3%
D. MacKinnon	1/3%
R. MacKinnon	1/3%
Westphal	1%

**2.2 Reports.** Royalty payments and reports for the sale of Products shall be calculated and reported for each calendar quarter. Each payment of royalties shall be accompanied by a report of sales of Products in sufficient detail to permit confirmation of the accuracy of the royalty payment made, including, without limitation, the number of Products sold, the gross sales of Products, the royalties payable and the method used to calculate the royalty.

**2.3 Manner and Place of Payment.** All payments hereunder shall be payable in U.S. dollars. All payments owed under this Agreement shall be made by wire transfer to a bank and account designated in writing by the Party receiving such payment.



**2.4 Income Tax Withholding.** Each Founder will pay any and all taxes levied on account of any payments made to him under this Agreement. If any taxes are required to be withheld by the Company, the Company will (a) deduct such taxes from the payment made to such Founder, (b) timely pay the taxes to the proper taxing authority, and (c) send proof of payment to such Founder and certify its receipt by the taxing authority within 30 days following such payment.

**2.5 Audits.** During the term of this Agreement and for a period of three years thereafter, the Company shall keep (and shall cause its Affiliates and Licensees to keep) complete and accurate records pertaining to the sale or other disposition of Products in sufficient detail to permit the Founders to confirm the accuracy of all royalty payments due hereunder. The Founders holding a majority in interest of the royalties payable hereunder shall have the right to cause an independent, certified public accountant reasonably acceptable to the Company to audit any such records in the Company's or its Affiliate's possession to confirm sales and royalties for a period covering not more than the preceding three years. Such audits may be exercised during normal business hours upon reasonable prior written notice to the Company. Prompt adjustments shall be made by the Parties to reflect the results of such audit. The Founders requesting such audit shall bear the full cost of such audit unless such audit discloses an underpayment by the Company of more than 10% of the amount of royalties due under this Agreement during the audited period, in which case, the Company shall bear the full cost of such audit and shall promptly remit to the Founders the amount of any underpayment. The Founders may only exercise their audit rights under this Section 2.5 once in any twelve (12) month period.

**2.6 Licensees.** Any license or sublicense granted by the Company will, to the extent related to Products, be consistent with the terms and conditions of this Agreement, and Company shall include in any licenses or sublicenses sufficient provisions to enable it to comply with the royalty provisions contained in this Agreement, including without limitation, audit provisions substantially similar to those set forth in Section 2.5. As requested by the Founders, the Company shall enforce the provisions of its licenses and sublicenses applicable to the payment of royalties hereunder, including conducting audits of Licensee records pertaining to the sale of Products. Company shall remain primarily responsible for any failures by its Licensees to comply with the applicable terms of this Agreement, and of the terms of license and sublicense agreements that enable compliance with the terms of this Agreement. The Company will furnish a copy of all such licenses and sublicenses executed by the Company to the Founders promptly following the execution thereof; provided, however, that such copies may be redacted by the Company except as necessary to ensure compliance with the terms of this Agreement.

### 3. REPRESENTATIONS AND WARRANTIES

**3.1 Mutual Representations and Warranties.** Each Party represents and warrants to the others that: (a) it has full power and authority to enter into this Agreement and to carry out the provisions hereof; (b) it is duly authorized to execute and deliver this Agreement and to perform its obligations hereunder; and (c) this Agreement is legally binding upon it, enforceable in accordance with its terms, and does not conflict with any

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agreement, instrument or understanding, oral or written, to which it is a party or by which it may be bound, nor violate any material law or regulation of any court, governmental body or administrative or other agency having jurisdiction over it.

**3.2 Disclaimer of Warranties.** Except as expressly set forth in this Agreement, NO PARTY MAKES ANY REPRESENTATION OR WARRANTY TO THE OTHER PARTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF TITLE, NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

**3.3 Limitation of Liability.** EXCEPT FOR PAYMENTS UNDER ARTICLE 2, NO PARTY SHALL BE ENTITLED TO RECOVER FROM THE OTHER PARTIES ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES IN CONNECTION WITH THIS AGREEMENT.

### 4. TERM

The term of this Agreement shall commence as of the Effective Date and shall continue in perpetuity; *provided, however*, (a) if the Scientific Founders elect to exercise their Termination Right, as that term is defined in Section 7 of the Founders Agreement in accordance with the terms thereof, this Agreement shall without further action be automatically terminated and of no further force and effect and (b) if the perpetual term of this Agreement is invalid, illegal or unenforceable, the term of this agreement shall expire upon the earlier of the (i) fortieth (40<sup>th</sup>) anniversary of the Effective Date and (ii) the latest permissible expiration date that would be valid, legal and enforceable.

### 5. CONFIDENTIALITY

Each Founder will treat the royalty reports, the terms of this Agreement, and any other confidential or proprietary information of the Company disclosed to the Founders hereunder, as confidential information of the Company, will only use such information for the purposes of this Agreement, will protect it from unauthorized use, access, or disclosure in the same manner as the Founder protects its own confidential or proprietary information of a similar nature and with no less than reasonable care, will disclose it only to the employees or agents of the Founder who have a need to know such information, if any, for purposes of this Agreement and who are under a duty of confidentiality no less restrictive than the Founder's duties hereunder, and will return to the Company or destroy all such information after expiration or termination of this Agreement. Each Founder will be allowed to disclose confidential information of the Company to the extent that such disclosure is (a) approved in writing by the Company or (b) required by law or by the order or a court of similar judicial or administrative body, provided that each Founder notifies the Company of such required disclosure promptly and in writing and cooperates with the Company, at the Company's request and expense, in any lawful action to contest or limit the scope of such required disclosure.

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### 6. MISCELLANEOUS

**6.1 Assignment.** Each Founder may assign this Agreement and his rights and obligations hereunder to a Third Party upon prior written notice to the Company. Except as expressly provided hereunder, neither this Agreement nor any rights or obligations hereunder may be assigned or otherwise transferred by the Company without the prior written consent of the Founders (which consent shall not be unreasonably withheld, conditioned or delayed); *provided, however*, that, subject to the remaining provisions of this Section 6.1, the Company may assign this Agreement and its rights and obligations hereunder without the Founders' consent (a) in connection with the transfer or sale of all or substantially all of the Company's business to which this Agreement relates to a Third Party, whether by merger, sale of stock, sale of assets or otherwise (such Third Party, an "Acquirer"), or (b) to any

Affiliate of the Company. The Company shall give the Founders prompt written notice of any such assignment. The rights and obligations of the Parties under this Agreement shall be binding upon and inure to the benefit of the successors and permitted assigns of the Parties. As a condition to the effectiveness of any assignment hereunder, any Acquirer, successor or assignee of rights or obligations permitted hereunder shall, prior to the effectiveness of such assignment, expressly assume in writing to the other Parties hereto the obligation to perform the assigning Party's obligations hereunder. For the avoidance of doubt, the Company may not transfer any intellectual property (including any know-how) or other material assets that may be used for the manufacture or sale of products used in the treatment of any neuromuscular disorders, including any anti-cramp products, to any Third Party unless such Third Party agrees to be bound by the terms of this Agreement as if it were the Company hereunder. Any assignment not in accordance with this Agreement shall be void.

**6.2 Governing Law.** This Agreement shall be governed by, and construed and enforced in accordance with, the laws of the Commonwealth of Massachusetts, without regard to its choice of law provisions.

**6.3 Waiver.** Except as specifically provided for herein, the waiver from time to time by any Party of any right or failure to exercise any remedy shall not operate or be construed as a continuing waiver of the same right or remedy or of any other of such Party's rights or remedies provided under this Agreement.

**6.4 Severability.** In case any provision of this Agreement shall be invalid, illegal or unenforceable, (a) the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby to the maximum extent possible and (b) in lieu of such invalid, illegal or unenforceable provision, there will be added automatically as a part of this Agreement a legal, valid and enforceable provision as similar in terms to such illegal, invalid or unenforceable provision as may be possible to effectuate the intents and purposes of such provision.

**6.5 Notices.** All notices and other communications provided for hereunder shall be in writing and shall be mailed by first-class, registered or certified mail, postage paid, or delivered personally, by overnight delivery service or by facsimile, with

confirmation of receipt, addressed to the address set forth for such Party in the introduction hereto. Any Party may by like notice specify or change an address to which notices and communications shall thereafter be sent. Notices sent by facsimile shall be effective upon confirmation of receipt, notices sent by mail or overnight delivery service shall be effective upon receipt, and notices given personally shall be effective when delivered.

**6.6 Entire Agreement; Amendment.** This Agreement sets forth all of the agreements and understandings between the Parties hereto with respect to the subject matter hereof, and supersedes and terminates all prior agreements and understandings between the Parties with respect to the subject matter hereof. There are no agreements or understandings with respect to the subject matter hereof, either oral or written, between the Parties other than as set forth herein. The parties hereby agree that the terms of this Agreement implement Section 5 of the Founders Agreement, and that Section 5 of the Founders Agreement shall have no further force or effect. For the avoidance of doubt, the remaining provisions of the Founders Agreement shall remain in full force and effect and shall not be superseded or merged pursuant to this Agreement. Except as expressly set forth in this Agreement, no subsequent amendment, modification or addition to this Agreement shall be binding upon the Parties hereto unless reduced to writing and signed by the Company and the Founders holding a majority in interest of the royalties payable hereunder. Notwithstanding the foregoing, this Agreement may not be amended or modified and the observance of any term hereof may not be waived with respect to any Founder without the written consent of such Founder, unless such amendment, modification, or waiver applies to all Founders in the same fashion.

**6.7 Headings.** The captions contained in this Agreement are not a part of this Agreement, but are merely guides or labels to assist in locating and reading the several Articles hereof.

**6.8 Counterparts.** This Agreement 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. An executed signature page of this Agreement delivered by facsimile transmission, including signatures in a fixed electronic format such as a PDF, will be as effective as an original executed signature page.

[Signature page follows]

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the date first set forth above.

**FLEX PHARMA, INC.**

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

**THE FOUNDERS:**

\_\_\_\_\_  
Bruce Bean

\_\_\_\_\_  
Donald MacKinnon

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Roderick MacKinnon

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Christoph Westphal

[Signature Page to Royalty Agreement]

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