

As confidentially submitted to the Securities and Exchange Commission on December 15, 2020.

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-

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

FORM S-1
REGISTRATION STATEMENT
UNDER

THE SECURITIES ACT OF 1933

Longboard Pharmaceuticals, Inc.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

2834
(Primary Standard Industrial
Classification Code Number)

84-5009619
(I.R.S. Employer
Identification Number)

6154 Nancy Ridge Drive
San Diego, California 92121
(619) 592-9775

(Address, including zip code, and telephone number, including
area code, of registrant's principal executive offices)

Kevin R. Lind
President, Chief Executive Officer and Chief Financial Officer
Longboard Pharmaceuticals, Inc.
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(Name, address, including zip code, and telephone number, including
area code, of agent for service)

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As soon as practicable after the effective date of this registration statement.
(Approximate date of commencement of proposed sale to the public)

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

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

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, smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	<input type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input checked="" type="checkbox"/>	Smaller reporting company	<input checked="" type="checkbox"/>
		Emerging growth company	<input checked="" type="checkbox"/>

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

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered	Proposed Maximum Aggregate Offering Price(1)(2)	Amount of Registration Fee
Common stock, par value \$0.0001 per share	\$	\$

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

(2) Includes the aggregate offering price of additional shares that the underwriters have the option to purchase, 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 which 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 in this preliminary prospectus is not complete and may be changed. These securities may not be sold until the registration statement filed with the Securities and Exchange Commission is effective. This preliminary prospectus is not an offer to sell nor does it seek an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

SUBJECT TO COMPLETION: DATED , 2021



Shares

Longboard Pharmaceuticals, Inc.

Common Stock

\$ per share

This is the initial public offering of our common stock. We are selling shares of our common stock. We expect the initial public offering price to be between \$ and \$ per share. After pricing of the offering, we expect to list our common stock on the Nasdaq Global Market under the symbol “LBPH.”

We have granted the underwriters the option to purchase up to an additional shares of our common stock.

We are an “emerging growth company” as defined by the Jumpstart Our Business Startups Act of 2012, and as such, have elected to comply with reduced public company reporting requirements for this prospectus and may elect to comply with reduced public company reporting requirements in future filings.

Investing in our common stock involves risks. See “Risk Factors” section beginning on page 11.

Neither the Securities and Exchange Commission nor any other regulatory body has approved or disapproved of these securities or passed upon the accuracy or adequacy of this prospectus. Any representation to the contrary is a criminal offense.

	Per Share	Total
Public Offering Price	\$	\$
Underwriting Discount ⁽¹⁾	\$	\$
Proceeds to Longboard Pharmaceuticals, Inc. (before expenses)	\$	\$

(1) See “Underwriting” for a description of the compensation payable to the underwriters.

The underwriters expect to deliver the shares of common stock to purchasers against payment on or about , 2021 through the book entry facilities of The Depository Trust Company.

Citigroup Evercore ISI Guggenheim Securities Cantor

, 2021

TABLE OF CONTENTS

	<u>Page</u>
PROSPECTUS SUMMARY	1
RISK FACTORS	11
SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS	66
MARKET, INDUSTRY AND OTHER DATA	67
USE OF PROCEEDS	68
DIVIDEND POLICY	70
CAPITALIZATION	71
DILUTION	73
SELECTED FINANCIAL DATA	75
MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS	76
BUSINESS	89
MANAGEMENT	123
EXECUTIVE COMPENSATION	130
CERTAIN RELATIONSHIPS AND RELATED PERSON TRANSACTIONS	142
PRINCIPAL STOCKHOLDERS	145
DESCRIPTION OF CAPITAL STOCK	148
SHARES ELIGIBLE FOR FUTURE SALE	154
MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES TO NON-U.S. HOLDERS	156
UNDERWRITING	161
LEGAL MATTERS	167
EXPERTS	167
WHERE YOU CAN FIND ADDITIONAL INFORMATION	167
INDEX TO FINANCIAL STATEMENTS	F-1

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. If anyone provides you with different or inconsistent information, you should not rely on it. 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.

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

This prospectus includes our trademarks and the trademarks and trade names of other organizations. Solely for convenience, trademarks and trade names referred to in this prospectus appear without the ® and ™ symbols, but those references are not intended to indicate that we will not assert, to the fullest extent under applicable law, our rights, or that the applicable owner will not assert its rights, to these trademarks and trade names. 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.

PROSPECTUS SUMMARY

This summary highlights information contained elsewhere in this prospectus. This summary does not contain all of the information you should consider before investing in our common stock. You should read this entire prospectus carefully, including the sections in this prospectus entitled “Risk Factors,” “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” and our financial statements and the related notes included elsewhere in this prospectus, before making an investment decision. Unless otherwise indicated, all references in this prospectus to “Longboard,” the “company,” “we,” “our,” “us” or similar terms refer to Longboard Pharmaceuticals, Inc.

Overview

We are a clinical-stage biopharmaceutical company focused on developing novel, transformative medicines for neurological diseases. We were formed in January 2020 by Arena Pharmaceuticals, Inc. (Arena) to advance a portfolio of centrally acting product candidates designed to be highly selective for specific G protein-coupled receptors (GPCRs). Our small molecule product candidates were discovered out of the same platform at Arena that represents a culmination of more than 20 years of GPCR research. Our pipeline includes:

- LP352, an oral, centrally acting, highly selective 5-hydroxytryptamine 2c receptor subtype (5-HT_{2c}) superagonist, that we plan to advance in a multiple-ascending dose (MAD) portion of a Phase 1 clinical trial in , and expect to initiate a Phase 1b/2a clinical trial for the treatment of developmental and epileptic encephalopathies (DEEs), including Dravet syndrome and Lennox-Gastaut syndrome, among others, in ;
- LP143, a centrally acting, highly selective, full cannabinoid type 2 receptor (CB₂) agonist in investigational new drug application (IND)-enabling studies for neurodegenerative diseases associated with neuroinflammation caused by microglial activation, including amyotrophic lateral sclerosis (ALS); and
- LP659, a centrally acting, highly selective sphingosine-1-phosphate (S1P) receptor subtypes 1 and 5 (S1P_{1,5}) modulator in IND-enabling studies for central nervous system (CNS) neuroinflammatory diseases.

We also have additional earlier discovery stage compounds.

LP352, our most advanced product candidate, is an oral, centrally acting, highly selective 5-HT_{2c} superagonist with negligible observed impact on 5-HT_{2a} and 5-HT_{2b} receptor subtypes in our preclinical studies to date. 5-HT_{2a} and 5-HT_{2b} receptor subtypes have been known to be associated with significant adverse side effects. LP352 has the potential to be a clinically differentiated 5-HT_{2c} superagonist for patients with DEEs, a group of severe early-childhood onset epilepsies characterized by refractory seizures and developmental delay or regression. Certain compounds in the 5-HT_{2c} agonist class have been shown to produce clinical benefit in epilepsy patients, although the side effect profiles of available non-selective 5-HT₂ therapies may limit their use due to their activity on receptor subtypes 5-HT_{2a} and 5-HT_{2b}. Fenfluramine, marketed as FINTEPLA, a non-specific 5-HT₂ agonist, was recently approved for the treatment of seizures associated with Dravet syndrome by the U.S. Food and Drug Administration (FDA). Fenfluramine has been associated with significant side effects and FINTEPLA has a Risk Evaluation and Mitigation Strategy (REMS) program requirement and a boxed warning. Another 5-HT_{2c} agonist, lorcaserin, is also under evaluation for its potential to reduce seizures in patients with Dravet syndrome and refractory epilepsies. Lorcaserin was discovered by Arena and approved by the FDA for chronic weight management, marketed as BELVIQ by Eisai Inc. and Eisai Co. Ltd. (collectively, Eisai), and withdrawn from the market at the request of the FDA based on a change in the FDA’s risk-benefit assessment for the approved indication. However, the FDA

authorized an expanded access program for patients with Dravet syndrome to continue to receive lorcaserin. LP352 was designed and developed by Arena to be the next generation to lorcaserin, with the goal of being a safer and more effective 5-HT_{2c} agonist. We believe LP352's high selectivity and novel chemistry give it the potential to reduce seizures in DEE patients and overcome the known or perceived safety limitations of available drugs in the 5-HT₂ class. In the completed single-ascending dose (SAD) portion of the Phase 1 clinical trial, there were no unexpected adverse events (AEs) observed and no cases of serious adverse events (SAEs) reported.

We are also developing LP143, a selective CB₂ agonist, and LP659, a selective S1P_{1,5} receptor agonist, based on their novel chemistry, selectivity for GPCRs, and high brain-to-plasma ratio. We believe these compounds have the potential to address microglial neuroinflammation, which may drive disease progression in a range of neurodegenerative diseases. LP143 and LP659 were designed by Arena to have more optimized pharmacology and pharmacokinetics (PK) for their intended GPCR targets, including GPCR subtypes, compared to other known compounds. We believe this selectivity and specificity has the potential to result in superior profiles in the clinic compared to drugs that may not fully engage the intended GPCR target, may cause off-target activity, or may be associated with other undesirable effects. LP143 is a centrally acting, highly selective, full CB₂ agonist being developed for the treatment of neurodegenerative diseases associated with neuroinflammation caused by microglial activation, including ALS. CB₂ agonism has been shown in studies to regulate neuroinflammatory processes, including microglial activation, reducing the amount of damage characteristic of degeneration. LP659 is a centrally acting, highly selective S1P_{1,5} receptor modulator for which aberrant modulation has been shown to be involved in a wide range of neurodegenerative diseases.

Our Pipeline

The following table provides an overview of our current programs:

Program	Mechanism of Action	Therapeutic Area	IND-Enabling	Phase 1	Phase 2	Phase 3	Anticipated Milestones	Rights*
LP352	5-HT _{2c} Superagonist	DEEs and other refractory epilepsies					Ph 1 MAD	
LP143	CB ₂ Agonist	ALS and other neuroinflammatory disorders					IND	
LP659	S1P Receptor Modulator	Multiple neuroinflammatory disorders					IND	

* We hold worldwide rights to our product candidates in our therapeutic areas of focus for such compounds through the Arena License Agreement, which is defined and described below.

LP352

We are developing LP352, an oral, centrally acting, highly selective 5-HT_{2c} superagonist for DEEs and other epileptic disorders. DEEs are a group of severe early-childhood onset epilepsies characterized by refractory seizures and developmental delay or regression. These diseases are often progressive and resistant to treatment. DEEs encompass a diverse range of etiologies and includes Dravet syndrome and Lennox-Gastaut syndrome, among others. There are an estimated 21,000 patients with Dravet syndrome and 47,000 patients with Lennox-Gastaut syndrome in the United States. There are an estimated 21,000 patients with Dravet syndrome in the European Union (EU). The number of patients with Lennox-Gastaut syndrome in the EU is less known. LP352

selectively targets the 5-HT_{2c} receptor, which has been shown to upregulate the release of gamma-aminobutyric acid (GABA), a principal neurotransmitter in the brain. This release of GABA increases the threshold for neuronal hyperexcitability, and decreases the likelihood of seizure occurrences. We believe LP352 has the mechanistic potential to reduce the frequency of seizures in Dravet syndrome and Lennox-Gastaut syndrome, as well as a broader epilepsy population.

We are currently investigating LP352 in a Phase 1 clinical trial for which the SAD portion has been completed. Initial PK data from the SAD portion of the clinical trial demonstrated dose dependent PK properties with proportional increases in area under the curve (AUC) and maximum serum concentrations (C_{max}). No unexpected AEs were observed and no SAEs were reported. We plan to advance the MAD portion of this clinical trial in , and expect to report topline data for this portion in . We plan to initiate a Phase 1b/2a clinical trial in , pending authorization to proceed under an IND we intend to submit to the FDA's Division of Neurology.

LP143

We are developing LP143, a centrally acting, highly selective, full CB₂ agonist for neurodegenerative diseases associated with neuroinflammation caused by microglial activation. CB₂ agonism has been shown in preclinical studies to regulate neuroinflammatory processes, reducing the neuronal damage characteristic of degeneration. We believe there is a strong rationale for CB₂ agonism in neurodegenerative diseases, given increased CB₂ expression in patients with these diseases as well as results from animal models. We see potential for a selective CB₂ agonist to treat a range of neurodegenerative diseases. LP143, through its selectivity for CB₂, versus the cannabinoid type 1 receptor (CB₁), was designed to minimize the risk of psychoactive AEs associated with CB₁ activation. Our initial focus is on ALS. Most ALS patients experience rapid disease progression and poor prognosis, with paralysis and death seen within a span of two to five years. Preclinical data have demonstrated the benefit of CB₂ agonism in a mouse model of ALS, with treated mice demonstrating delays in loss of motor function and improved survival. In preclinical studies, LP143 has demonstrated high potency and selectivity, 1,000-fold selectivity for CB₂ over CB₁, sustained activity over the duration of treatment, and favorable blood-brain-barrier penetration. LP143 is currently in IND-enabling studies and we anticipate submitting an IND to the FDA in .

LP659

We are developing LP659, a centrally acting, highly selective S1P_{1,5} receptor modulator for neurodegenerative diseases. LP659 was designed for optimized pharmacology, PK and engagement of S1P_{1,5}, which may lead to improved efficacy and safety. With the selective targeting of S1P_{1,5}, LP659 was designed to be a potent and selective small molecule S1P_{1,5} receptor modulator that reduces the severity of disease and potentially avoids the negative effects connected to the receptor subtypes 2 and 3, which may be associated with more serious, off-target cardiac, pulmonary, and cancer-related effects. Aberrant S1P receptor modulation has been shown to be involved in a wide range of neurodegenerative diseases, including multiple sclerosis, lupus, Parkinson's disease and Alzheimer's disease. Preclinical data demonstrated an initial dose-dependent decrease in disease progression over 17 days in a mouse model of demyelinating disease. LP659 rapidly reduced circulating lymphocytes, which returned to baseline after its clearance. We believe LP659 has high oral bioavailability with a direct impact on CNS glial cell S1P receptors. LP659 is currently in IND-enabling studies and we anticipate submitting an IND to the FDA in .

Our Company History and Team

We were established in January 2020 as Arena Neuroscience, Inc., a wholly owned subsidiary of Arena, based in San Diego, California. We changed our name to Longboard Pharmaceuticals, Inc. and launched as an

independent company in October 2020. Building on Arena's 20-year history in discovering, developing and optimizing GPCR therapies, we believe we are well positioned to execute our clinical development programs. We are initially focused on developing LP352, LP143, and LP659, which Arena designed to have distinct chemistry and therapeutic profiles from Arena's other product candidates with similar mechanisms of actions.

In October 2020, we entered into a License Agreement (Arena License Agreement) with Arena, under which we have exclusive rights to develop our product candidates for neurological disease indications. In addition to LP352, LP143 and LP659, we plan to continue to identify and develop other clinically differentiated product candidates for neurological diseases with high unmet medical need.

In addition, in October 2020, we purchased the right to receive all milestone payments, royalties, interest and other payments relating to net sales of lorcaserin owed or otherwise payable by Eisai, pursuant to a Royalty Purchase Agreement with Arena and 356 Royalty Inc., a wholly owned subsidiary of Arena. Lorcaserin is currently in a Phase 3 clinical trial for Dravet syndrome.

In October 2020, we completed a \$56.0 million private placement of our Series A preferred stock, with participation by Arena, Cormorant Asset Management, Farallon Capital Management, HBM Healthcare Investments, Highside Capital Management and T. Rowe Price Associates.

Our Strategy

Our goal is to develop therapies targeting well-characterized receptor pathways with optimized pharmacology and PK properties to transform the lives of patients with neurological diseases, initially focused on rare neurological diseases. Key elements of our strategy to achieve this goal include:

- Advance our lead program LP352 through clinical development and approval in DEEs.
- Progress LP143 into clinical development for neurodegenerative diseases associated with neuroinflammation caused by microglial activation.
- Continue preclinical development of LP659 across a range of CNS diseases associated with neuroinflammation and progress into clinical development.
- Identify additional product candidates and expand current candidates into additional neurological diseases.
- Explore strategic collaborations to maximize the value of our product candidates.

Risks Associated with Our Business

Investing in our common stock involves substantial risk. The risks described under the heading "Risk Factors" immediately following this summary may cause us to not realize the full benefits of our strengths or may cause us to be unable to successfully execute all or part of our strategy. Some of the more significant challenges include the following:

- We have a very limited operating history, and we have incurred losses since our inception and anticipate that we will continue to incur significant losses for the foreseeable future. We may never generate any revenue or become profitable or, if we achieve profitability, we may not be able to sustain it.
- Even if this offering is successful, we will require substantial additional capital to finance our operations, which may not be available on acceptable terms, or at all. Failure to obtain this necessary capital when needed may force us to delay, limit or terminate certain of our product development efforts or other operations.

- We are early in our development efforts and have only one product candidate, LP352, in early clinical development. All of our other product candidates are in the preclinical stage. If we are unable to advance our product candidates in clinical development, obtain regulatory approval and ultimately commercialize our product candidates, or experience significant delays in doing so, our business will be materially harmed.
- We are in the process of completing our first Phase 1 clinical trial, have never conducted later-stage clinical trials or submitted a new drug application (NDA), and may be unable to do so for any of our product candidates.
- Because we have multiple product candidates in our clinical pipeline and are considering a variety of target indications, we may expend our limited resources to pursue a particular product candidate and fail to capitalize on product candidates or indications that may be more profitable or for which there is a greater likelihood of success.
- Our product candidates may cause undesirable side effects or have other properties that could delay or prevent their regulatory approval, limit the commercial potential or result in significant negative consequences following any potential marketing approval.
- We face substantial competition, which may result in others discovering, developing or commercializing products before or more successfully than us.
- 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 product candidates, our business will be substantially harmed.
- We depend on intellectual property licensed from Arena, the termination of which could result in the loss of significant rights, which would harm our business.
- Arena currently performs or supports many of our operating activities and will continue to do so after the completion of this offering pursuant to a services agreement, and if we are unable to replicate or replace these functions if this services agreement is terminated, our operations could be adversely affected.
- COVID-19 has impacted and could continue to adversely impact our business.
- 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.
- Sales of a substantial number of shares of our common stock by our existing stockholders, including Arena, in the public market, or the perception that such sales could occur, could cause our stock price to fall.

Implications of Being an Emerging Growth Company and Smaller Reporting Company

We are an “emerging growth company” as defined in the Jumpstart Our Business Startups Act of 2012 (JOBS Act). We may take advantage of certain exemptions from various public company reporting requirements, including being permitted to provide 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, not being required to have our internal control over financial reporting audited by our independent registered public accounting firm under Section 404 of the Sarbanes-Oxley Act of 2002 (Sarbanes-Oxley Act), reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements, and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved. We may take advantage of these exemptions until the last day of the fiscal year ending after the fifth anniversary of this offering or until we are no longer an emerging growth company,

whichever is earlier. We will cease to be an emerging growth company prior to the end of such five-year period if certain earlier events occur, including if we become a “large accelerated filer” as defined in Rule 12b-2 under the Securities Exchange Act of 1934, as amended (Exchange Act) our annual gross revenues exceed \$1.07 billion or we issue more than \$1.0 billion of non-convertible debt in any three-year period. In particular, in this prospectus, we have not included all of the executive compensation related information that would be required if we were not an emerging growth company, and we may elect to take advantage of other reduced reporting requirements in future filings. Accordingly, the information contained herein may be different than the information you receive from other public companies in which you hold stock.

In addition, the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. This provision allows an emerging growth company to delay the adoption of accounting standards that have different effective dates for public and private companies until those standards would otherwise apply to private companies. We have elected to avail ourselves of this exemption from new or revised accounting standards, and therefore we will not be subject to the same requirements to adopt new or revised accounting standards as other public companies that are not emerging growth companies.

We are also a “smaller reporting company” and a “non-accelerated” filer as defined in the Exchange Act. We may continue to be a smaller reporting company and a non-accelerated filer even after we are no longer an emerging growth company. We may take advantage of certain of the scaled disclosures available to smaller reporting companies and a non-accelerated filer and will be able to take advantage of these scaled disclosures for so long as our voting and non-voting common stock held by non-affiliates is less than \$250.0 million measured on the last business day of our second fiscal quarter, or our annual revenue is less than \$100.0 million during the most recently completed fiscal year and our voting and non-voting common stock held by non-affiliates is less than \$700.0 million measured on the last business day of our second fiscal quarter.

Corporate Information

We were incorporated in January 2020 under the name Arena Neuroscience, Inc., a Delaware corporation. In October 2020, we changed our name to Longboard Pharmaceuticals, Inc. Our principal executive offices are located at 6154 Nancy Ridge Drive, San Diego, California 92121, and our telephone number is (619) 592-9775. Our website address is www.longboardpharma.com. Information contained in, or that can be accessed through, our website is not incorporated by reference into this prospectus. Our wave design logo, “Longboard,” “Longboard Pharmaceuticals,” and common law trade names, trademarks and service marks are the licensed intellectual property of Longboard Pharmaceuticals, Inc.

The Offering

Common stock offered by us	shares.
Common stock to be outstanding after this offering	shares (or shares if the underwriters exercise their option to purchase additional shares of our common stock in full).
Option to purchase additional shares	We have granted the underwriters the option to purchase up to an additional shares of our common stock. The underwriters can exercise this option at any time within 30 days after the date of this prospectus.
Use of proceeds	<p>We estimate that our net proceeds from this offering will be approximately \$ million (or approximately \$ million if the underwriters exercise their option to purchase additional shares of our common stock in full), after deducting underwriting discounts and commissions and estimated offering expenses payable by us.</p> <p>We intend to use the net proceeds we receive from this offering to fund our development of (i) LP352, including through the completion of our planned Phase 1b/2a clinical trial, (ii) LP143, including through the completion of a Phase 1 clinical trial, (iii) LP659, including through the completion of a Phase 1 clinical trial, and (iv) the remainder for additional discovery and preclinical development of additional product candidates and potential additional development of our existing product candidates, as well as headcount costs, working capital and other general corporate purposes. See “Use of Proceeds” for additional information.</p>
Proposed Nasdaq Global Market symbol	“LBPH”
Risk factors	See “Risk Factors” for a discussion of factors you should consider carefully before deciding to invest in our common stock

The number of shares of our common stock to be outstanding after this offering set forth above is based on 8,383,000 shares of our common stock outstanding as of September 30, 2020, after giving effect to the (i) issuance of 5,600,000 shares of our Series A convertible preferred stock (Series A preferred stock), in October 2020, and (ii) automatic conversion of all outstanding shares of our Series A preferred stock into 5,600,000 shares of our common stock in connection with the closing of this offering, and excludes:

- shares of our common stock issuable upon the exercise of stock options granted after September 30, 2020 under our 2020 Equity Incentive Plan (2020 Plan) with a weighted-average exercise price of \$ per share;
- 252,500 shares of restricted common stock granted after September 30, 2020 under our 2020 Plan;
- shares of our common stock reserved for future issuance under our 2021 Equity Incentive Plan (2021 Plan), which will become effective upon the execution and delivery of the underwriting agreement for this offering, as well as any automatic annual increases in the number of shares of common stock reserved for issuance under our 2021 Plan and any shares underlying outstanding stock awards granted under our 2020 Plan that expire or are repurchased, forfeited, cancelled or withheld, as more fully described in the section entitled “Executive Compensation—Equity Incentive Plans”; and

- shares of our common stock reserved for issuance under our 2021 Employee Stock Purchase Plan (ESPP), which will become effective upon the execution and delivery of the underwriting agreement for this offering, and any automatic annual increases in the number of shares of common stock reserved for future issuance under our ESPP.

In addition, unless we specifically state otherwise, the information in this prospectus assumes:

- the issuance of an aggregate of 5,600,000 shares of our Series A preferred stock in October 2020 and our receipt of \$56.0 million in aggregate gross proceeds from this financing;
- the automatic conversion of all outstanding shares of our Series A preferred stock into an aggregate of 5,600,000 shares of our common stock in connection with the closing of this offering;
- no exercise of the outstanding options described above;
- no exercise of the underwriters' option to purchase up to an additional shares of common stock from us in this offering;
- a 2,783-for-one forward stock split of our common stock effected on October 27, 2020;
- a -for- stock split of our common stock to be effected prior to the closing of this offering;
- an 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; and
- the filing and effectiveness of our amended and restated certificate of incorporation and the adoption of our amended and restated bylaws immediately prior to and upon the closing of this offering, respectively.

Summary Financial Data

The following tables set forth a summary of our financial data as of September 30, 2020. The statement of operations and comprehensive loss data for the period from January 3, 2020 (inception) to September 30, 2020, and the balance sheet data as of September 30, 2020, are derived from our audited financial statements that are included elsewhere in this prospectus.

You should read the following summary financial data together with the sections entitled “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” “Selected Financial Data” and our financial statements and the related notes included elsewhere in this prospectus. The summary financial data in this section are not intended to replace our financial statements and the related notes and are qualified in their entirety by the financial statements and related notes included elsewhere in this prospectus. Our historical results are not necessarily indicative of results that should be expected in any future period, and our results for any interim period are not necessarily indicative of results that should be expected for any full year.

	Period from January 3, 2020 (Inception) through September 30, 2020 (in thousands, except share and per share data)
Statement of Operations and Comprehensive Loss Data:	
Operating expenses:	
Research and development (includes related party amounts of \$559)	\$ 2,462
General and administrative (includes related party amounts of \$1,100)	1,829
Total operating expenses	4,291
Loss from operations	(4,291)
Net loss and comprehensive loss	\$ (4,291)
Net loss per share, basic and diluted ⁽¹⁾	\$ (1.56)
Weighted-average number of shares used in computing net loss per share, basic and diluted ⁽¹⁾	2,752,192

- (1) See Note 2 to our financial statements included elsewhere in this prospectus for a description of how we compute basic and diluted net loss per share and the weighted-average number of shares used in the computation of these per share amounts.

	As of September 30, 2020		
	Actual	Pro Forma ⁽¹⁾ (in thousands)	Pro Forma, As Adjusted ⁽²⁾ (unaudited)
Balance Sheet Data:			
Cash	\$ 217	\$ 56,217	\$
Working capital (deficit) ⁽⁴⁾	(943)	55,057	
Total assets	218	56,218	
Series A convertible preferred stock	—	—	
Total stockholders’ deficit (equity)	(943)	55,057	

- (1) Gives effect to the (i) issuance of an aggregate of 5,600,000 shares of our Series A preferred stock in October 2020 and our receipt of \$56.0 million in aggregate gross proceeds therefrom, (ii) automatic conversion of all of our outstanding

shares of Series A preferred stock into an aggregate of 5,600,000 shares of common stock in connection with the closing of this offering, and (iii) filing and effectiveness of our amended and restated certificate of incorporation that will be in effect immediately prior to the closing of this offering.

- (2) Gives effect to the (i) items described in footnote (1) above and (ii) issuance and sale of _____ shares of our common stock in this offering at the assumed initial public offering price of \$ _____ per share, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.
- (3) A \$1.00 increase (decrease) in the assumed initial public offering price of \$ _____ per share would increase (decrease) each of cash, working capital, total assets and total stockholders' equity by \$ _____ million, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same, after deducting the underwriting discounts and commissions. Similarly, each increase (decrease) of 1.0 million shares in the number of shares of common stock offered by us would increase (decrease) each of cash, working capital, total assets, and total stockholders' equity by \$ _____ million, assuming the assumed initial public offering price of \$ _____ per share remains the same, and after deducting the underwriting discounts and commissions.
- (4) We define working capital as current assets less current liabilities. See our financial statements and related notes included elsewhere in this prospectus for further details regarding our current assets and current liabilities.

RISK FACTORS

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

Risks Related to Our Limited Operating History, Financial Position and Need For Additional Capital

We have a very limited operating history, and we have incurred losses since our inception and anticipate that we will continue to incur significant losses for the foreseeable future. We may never generate any revenue or become profitable or, if we achieve profitability, we may not be able to sustain it.

We were incorporated in January 2020 and we have a very limited operating history upon which you can evaluate our business and prospects. Our operations to date have been primarily focused on organizing and staffing our company, research and development activities, business planning, raising capital, in-licensing intellectual property rights and establishing our intellectual property portfolio, and providing general and administrative support for these operations. LP352, our most advanced product candidate, is in early clinical development, while our other product candidates, LP143 and LP659, are in the preclinical stage. We have not yet demonstrated an ability to overcome many of the risks and uncertainties frequently encountered by companies in the biopharmaceutical industry, including an ability to obtain regulatory approval of a product candidate, manufacture any product candidate at commercial scale, or arrange for a third party to do so on our behalf, or conduct sales and marketing activities necessary for successful product commercialization. In addition, because we recently in-licensed the rights to each of our product candidates from Arena, we have not yet initiated, conducted or completed a clinical trial as a company. Consequently, any predictions about our future performance may not be as accurate as they would be if we had a history of successfully developing and commercializing biopharmaceutical products.

Investment in biopharmaceutical product development is highly speculative because it entails substantial upfront capital expenditures and significant risk that any potential product candidate will fail to demonstrate adequate effectiveness in the targeted indication or an acceptable safety profile, gain regulatory approval and become commercially viable. We have no products approved for commercial sale and have not generated any revenue to date, and we continue to incur significant research and development and other expenses related to our ongoing operations. As a result, we are not profitable and have incurred losses since our inception in January 2020. For the period from January 3, 2020 (inception) to September 30, 2020, we reported a net loss of \$4.3 million. As of September 30, 2020, we had an accumulated deficit of \$4.3 million.

We expect to continue to incur significant losses for the foreseeable future, and we expect these losses to increase as we:

- continue to invest in our research and development activities, including conducting preclinical studies;
- submit INDs and conduct clinical trials for our current and future product candidates;
- seek marketing approvals for any product candidates that successfully complete clinical trials;
- experience any delays or encounter any issues with any of the above, including but not limited to failed studies, negative or mixed clinical trial results, safety issues or other regulatory challenges, the risk of which in each case may be exacerbated by the ongoing COVID-19 pandemic;
- hire additional personnel and build our internal resources to become less reliant on Arena, including those related to audit, patent, other legal, regulatory and tax-related services associated with maintaining

Table of Contents

- compliance with exchange listing and SEC requirements, director and officer insurance premiums and investor and public relations costs;
- obtain, expand, maintain, enforce and protect our intellectual property portfolio;
- establish a sales, marketing and distribution infrastructure and establish manufacturing capabilities, whether alone or with third parties, to commercialize product candidates for which we may obtain regulatory approval, if any; and
- operate as a public company.

To become and remain profitable, we must succeed in developing and eventually commercializing products that generate significant revenue. This will require us to be successful in a range of challenging activities, including completing clinical trials and preclinical studies of our product candidates, obtaining regulatory approval for these product candidates and manufacturing, marketing and selling any products for which we may obtain regulatory approval. We are only in the preliminary stages of most of these activities. We may never succeed in these activities and, even if we do, may never generate revenues that are significant enough to achieve profitability. Because of the numerous risks and uncertainties associated with biopharmaceutical 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. 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 depress the value of our company and could impair our ability to raise capital, expand our business, maintain our research and development efforts, diversify our product candidates or even continue our operations. A decline in the value of our company could also cause you to lose all or part of your investment.

Even if this offering is successful, we will require substantial additional capital to finance our operations, which may not be available on acceptable terms, or at all. Failure to obtain this necessary capital when needed may force us to delay, limit or terminate certain of our product development efforts or other operations.

We expect our expenses to increase substantially in connection with our ongoing and planned activities, particularly as we continue to develop our product candidates in preclinical studies and clinical trials and expand our organization by hiring additional personnel. Our expenses will increase substantially if our product candidates successfully complete early clinical and other studies, and also could increase beyond expectations if the FDA or other regulatory authorities require us to perform clinical and other studies in addition to those that we currently anticipate. In addition, following the completion of this offering, we expect to incur additional costs associated with operating as a public company. Furthermore, if we obtain marketing approval for our product candidates, we expect to incur significant expenses related to manufacturing, marketing, sales and distribution.

As of September 30, 2020, after giving effect to the sale and issuance of 5,600,000 shares of our Series A preferred stock for aggregate gross proceeds of \$56.0 million in October 2020, our cash was \$56.2 million. We believe, based on our current operating plan, that the net proceeds from this offering, together with our existing cash, will be sufficient to fund our operations for at least the next months. However, our operating plan may change as a result of many factors currently unknown to us, and we may need to seek additional funds sooner than planned, through public or private equity or debt financings, third-party funding, marketing and distribution arrangements, as well as other collaborations, strategic alliances and licensing arrangements, or any combination of these approaches.

In any event, we will require substantial additional capital to support our business operations as we pursue additional preclinical and clinical activities and regulatory approval of our current or any future product candidates, and otherwise to support our continuing operations. In addition, if we obtain marketing approval for any of our product candidates, we expect to incur significant commercialization expenses related to product sales, marketing, manufacturing and distribution. Even if we believe we have sufficient capital for our current or future operating plans, we may seek additional capital if market conditions are favorable or if we have specific

strategic considerations. Any additional capital raising efforts may divert our management from their day-to-day activities, which may adversely affect our ability to develop and, if approved, commercialize our current and any future product candidates.

Additional funding may not be available on acceptable terms, or at all. As a result of the COVID-19 pandemic and actions taken to slow its spread, the global credit and financial markets have experienced extreme volatility and disruptions, including severely diminished liquidity and credit availability, declines in consumer confidence, declines in economic growth, increases in unemployment rates, and uncertainty about economic stability. If the equity and credit markets deteriorate, it may make any necessary debt or equity financing more difficult, more costly or more dilutive. If we do not raise additional capital in sufficient amounts, we may be prevented from pursuing development and commercialization efforts, which will harm our business, operating results and prospects.

Raising additional capital or acquiring or licensing assets by issuing equity or debt securities may cause dilution to our stockholders, and raising funds through lending and licensing arrangements may restrict our operations or require us to relinquish proprietary rights.

We may seek additional capital through a combination of public and private equity offerings, debt financings, strategic partnerships and alliances and licensing arrangements. To the extent that we raise additional capital through the sale of equity or convertible debt securities, your ownership interest will be diluted, and the terms may include liquidation or other preferences that adversely affect your rights as a stockholder. The incurrence of indebtedness would result in increased fixed payment obligations and could involve certain restrictive covenants, such as limitations on our ability to incur additional debt, limitations on our ability to acquire or license intellectual property rights and other operating restrictions that could adversely impact our ability to conduct our business. If we raise additional capital through future collaborations, strategic alliances or third-party licensing arrangements, we may have to relinquish valuable rights to our intellectual property, future revenue streams, research programs or product candidates, or grant licenses on terms that may not be favorable to us.

If we are unable to raise additional capital 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 develop and market ourselves.

Risks Related to the Development and Commercialization of Our Product Candidates

We are early in our development efforts and have only one product candidate, LP352, in early clinical development. All of our other product candidates are in the preclinical stage. If we are unable to advance our product candidates in clinical development, obtain regulatory approval and ultimately commercialize our product candidates, or experience significant delays in doing so, our business will be materially harmed.

We are in the early stages of our development efforts and have only one product candidate, LP352, in early clinical development. We are currently investigating LP352 in a Phase 1 clinical trial for which the SAD portion has been completed. We plan to advance the MAD portion of the clinical trial in , and while we expect to report topline data for the MAD portion of the clinical trial in , it is possible that the MAD portion of the clinical trial will take longer than anticipated to complete due to unexpected delays. Our other product candidates, including LP143 and LP659, are in the preclinical stage. We will need to progress LP143, LP659 and any other early product candidates through IND-enabling studies and submit INDs to the FDA prior to initiating their clinical development. Moreover, none of our product candidates have advanced into a pivotal study. Our ability to generate product revenues, which we do not expect will occur for many years, if ever, will depend heavily on the successful development and eventual commercialization of our product candidates. The success of our product candidates will depend on several factors, including the following:

- successful enrollment in clinical trials and completion of clinical trials and preclinical studies with favorable results;

[Table of Contents](#)

- clearance of INDs by the FDA or similar regulatory filings by comparable foreign regulatory authorities for the conduct of clinical trials of our product candidates and our proposed design of future clinical trials;
- demonstrating the safety and efficacy of our product candidates to the satisfaction of applicable regulatory authorities;
- receipt of marketing approvals from applicable regulatory authorities, including NDAs from the FDA and maintaining such approvals;
- making arrangements with third-party manufacturers for, or establishing, clinical and commercial manufacturing capabilities;
- establishing sales, marketing and distribution capabilities and launching commercial sales of our products, if and when approved, whether alone or in collaboration with others;
- establishing and maintaining of patent and trade secret protection or regulatory exclusivity for our product candidates;
- maintaining an acceptable safety profile of our products following approval; and
- building and maintaining an organization of people who can successfully develop our product candidates.

The success of our business, including our ability to finance our company and generate any revenue in the future, will primarily depend on the successful development, regulatory approval and commercialization of our most advanced product candidate, LP352, as well as our other product candidates, which may never occur. We have not yet succeeded and may not succeed in demonstrating efficacy and safety for any product candidates in clinical trials or in obtaining marketing approval thereafter. Given our early stage of development, it will take several years before we can demonstrate the safety and efficacy of a treatment sufficient to warrant approval for commercialization, if we can do so at all. If we are unable to develop, or obtain regulatory approval for, or, if approved, successfully commercialize our product candidates, we may not be able to generate sufficient revenue to continue our business.

Risks associated with the in-licensing or acquisition of product candidates could cause substantial delays in the preclinical and clinical development of our product candidates.

Prior to October 2020, as a company we had no involvement with or control over the preclinical and early clinical research and development of our product candidates. We have relied on third parties, including Arena, to have conducted such research and development in accordance with the applicable protocol, legal, regulatory and scientific standards prior to the in-licensing of our product candidates. If the research and development processes or the results of the development programs prior to the in-licensing of our product candidates prove to be unreliable, this could result in increased costs and delays in the development of our product candidates, which could adversely affect any future revenue from these product candidates.

We may also acquire or in-license additional product candidates for preclinical or clinical development in the future as we continue to build our pipeline. The risks associated with acquiring or in-licensing current or future product candidates could result in delays in the commencement or completion of our preclinical studies and clinical trials, if ever, and our ability to generate revenues from our product candidates may be delayed.

Clinical and preclinical drug development involves a lengthy and expensive process with an uncertain outcome. The results of prior clinical trials and early preclinical studies and clinical trials of our product candidates are not necessarily predictive of future results.

Before obtaining marketing approval from the FDA, European Medicines Agency (EMA) or other comparable foreign regulatory authorities for the sale of our product candidates, we must complete preclinical development and extensive clinical trials to demonstrate the safety and efficacy of our product candidates. Clinical and preclinical drug development is expensive and can take many years to complete, and its outcome is inherently uncertain. Our clinical trials may not be conducted as planned or completed on schedule, if at all, and

failure can occur at any time during the preclinical study or clinical trial process. Despite promising preclinical or clinical results, any product candidate can unexpectedly fail at any stage of preclinical or clinical development. The historical failure rate for product candidates in our industry is high. The results from preclinical studies or early clinical trials of a product candidate may not predict the results of later clinical trials of the product candidate, and interim results of a clinical trial are not necessarily indicative of final results. Furthermore, product candidates in later stages of clinical trials may fail to show the desired safety and efficacy characteristics despite having progressed through preclinical studies and initial clinical trials.

In particular, while we have initial Phase 1 clinical trials results from the SAD portion of the ongoing Phase 1 clinical trial of LP352, we do not know how LP352 will perform in the MAD portion of this trial or in future clinical trials, including our planned Phase 1b/2a clinical trial. It is not uncommon to observe results in clinical trials that are unexpected based on preclinical studies and early clinical trials, and many product candidates fail in clinical trials despite very promising early results. Moreover, preclinical and clinical data may be susceptible to varying interpretations and analyses. A number of companies in the biopharmaceutical industry have suffered significant setbacks in clinical development even after achieving promising results in earlier studies, or after others, including regulatory authorities, disagreed with such companies' views and interpretations of the data and results from earlier preclinical studies or clinical trials. Further, neither we nor any third party, including Arena, have conducted preclinical studies of LP352 with respect to epilepsy. As we investigate LP352 for DEEs and other epileptic diseases, we may encounter difficulties that we have not yet encountered in our Phase 1 clinical trial of LP352. Furthermore, LP143 and LP659 may not be able to progress from preclinical to Phase 1 clinical development.

Clinical trials may not be conducted as planned or completed on schedule, if at all. A failure of one or more clinical trials can occur at any stage of testing. Events that may prevent successful or timely completion of clinical development include:

- delays in reaching a consensus with regulatory authorities on trial design or implementation;
- delays in obtaining regulatory authorization to commence a trial;
- delays in reaching agreement on acceptable terms with prospective clinical research organizations (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;
- delays in obtaining approval from one or more institutional review boards (IRBs), or IRBs refusing to approve, suspending or terminating the trial at an investigational site, precluding enrollment of additional subjects, or withdrawing their approval of the trial;
- delays in recruiting suitable patients to participate in our ongoing and planned clinical trials;
- changes to the clinical trial protocol;
- clinical sites deviating from trial protocol or dropping out of a trial;
- delays in manufacturing sufficient quantities of our product candidates for use in clinical trials;
- delays in having patients complete participation in a trial or return for post-treatment follow-up;
- subjects choosing an alternative treatment for the indication for which we are developing our product candidates, or participating in competing clinical trials;
- lack of adequate funding to continue a trial;
- occurrence of AEs or SAEs associated with the product candidate that are viewed to outweigh its potential benefits;
- occurrence of SAEs in trials of the same class of agents conducted by other companies;
- selection of clinical end points that require prolonged periods of clinical observation or analysis of the resulting data;

[Table of Contents](#)

- a facility manufacturing our product candidates or any of their components being ordered by the FDA or comparable foreign regulatory authorities to temporarily or permanently shut down due to violations of current good manufacturing practice (cGMP) regulations or other applicable requirements, or infections or cross-contaminations of product candidates in the manufacturing process;
- third-party clinical investigators losing the licenses or permits necessary to perform our clinical trials, not performing our clinical trials on our anticipated schedule or consistent with the clinical trial protocol (GCP) or other regulatory requirements; or
- changes in regulatory requirements and guidance that require amending or submitting new clinical protocols.

We could also encounter delays if a clinical trial is suspended or terminated by us, by the IRBs of the institutions in which such trials are being conducted, by a Data Safety Monitoring Board for such trial or by the FDA or comparable foreign regulatory authorities. Such authorities may impose such a suspension or termination due to a number of factors, including failure to conduct the clinical trial in accordance with regulatory requirements or our clinical protocols, inspection of the clinical trial operations or trial site by the FDA or comparable foreign 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. In addition, changes in regulatory requirements and policies may occur, and we may need to amend clinical trial protocols to comply with these changes. Amendments may require us to resubmit our clinical trial protocols to IRBs for reexamination, which may impact the costs, timing or successful completion of a clinical trial.

Further, conducting clinical trials in foreign countries, as we may do for our product candidates, presents additional risks that may delay completion of our clinical trials. These risks include the failure of enrolled patients in foreign countries to adhere to clinical protocol as a result of differences in healthcare services or cultural customs, managing additional administrative burdens associated with foreign regulatory schemes, as well as political and economic risks relevant to such foreign countries.

In addition, disruptions caused by the COVID-19 pandemic may increase the likelihood that we encounter difficulties or delays in initiating, screening, enrolling, conducting, or completing our ongoing and planned preclinical studies and clinical trials. Clinical site initiation and patient screening and enrollment may be delayed due to prioritization of hospital resources toward the COVID-19 pandemic. Investigators and patients may not be able to comply with clinical trial protocols if quarantines impede patient movement or interrupt healthcare services. Similarly, our ability to recruit and retain patients and principal investigators and site staff who, as healthcare providers, may have heightened exposure to COVID-19, could be limited, which in turn could adversely impact our clinical trial operations. Additionally, we may experience interruption of key clinical trial activities, such as clinical trial site monitoring, due to limitations on travel, quarantines or social distancing protocols imposed or recommended by federal or state governments, employers and others in connection with the ongoing COVID-19 pandemic. As a result of the COVID-19 pandemic, we have faced and may continue to face delays in meeting our anticipated timelines for our ongoing and planned clinical trials. Specifically, the initiation of the MAD portion of the Phase 1 clinical trial of LP352 was delayed, in part, as a result of the impact of the COVID-19 pandemic on the clinical site in the United Kingdom that conducted the SAD portion of the Phase 1 clinical trial for LP352, and subsequently we modified the protocol and relocated the MAD portion of such trial to a new clinical site in the United States.

Any inability to successfully complete preclinical and clinical development could result in additional costs to us or impair our ability to generate revenue from future product sales and regulatory and commercialization milestones. In addition, if we make manufacturing or formulation changes to our product candidates, we may need to conduct additional testing to bridge our modified product candidate to earlier versions. Clinical trial delays could also shorten any periods during which we may have the exclusive right to commercialize our product candidates, if approved, or allow our competitors to bring comparable products to market before we do,

which could impair our ability to successfully commercialize our product candidates and may harm our business, financial condition, results of operations and prospects.

We are in the process of completing our first Phase 1 clinical trial, have never conducted later-stage clinical trials or submitted an NDA, and may be unable to do so for any of our product candidates.

We are early in our development efforts for our product candidates, and we will need to successfully complete Phase 1 clinical trials and later-stage and pivotal clinical trials in order to obtain FDA or comparable foreign regulatory approval to market LP352, LP143, LP659 or any future product candidates. Carrying out clinical trials and the submission of NDAs is complicated. We are in the process of conducting our first Phase 1 clinical trial for LP352 and have not yet conducted any clinical trials for our other product candidates. We have not conducted any later stage or pivotal clinical trials, have limited experience as a company in preparing, submitting and prosecuting regulatory filings and have not previously submitted an NDA or other comparable foreign regulatory submission for any product candidate. We also plan to conduct a number of clinical trials for multiple product candidates in parallel over the next several years. This may be a difficult process to manage with our limited resources and may divert the attention of management. In addition, we have had limited interactions with the FDA and cannot be certain how many clinical trials of our product candidates will be required or how such trials will have to be designed. Consequently, we may be unable to successfully and efficiently execute and complete necessary clinical trials in a way that leads to regulatory submission and approval of any of our product candidates. We may require more time and incur greater costs than our competitors and may not succeed in obtaining regulatory approvals of product candidates that we develop. Failure to commence or complete, or delays in, our planned clinical trials, could prevent us from or delay us in submitting NDAs for and commercializing our product candidates.

Because we have multiple product candidates in our clinical pipeline and are considering a variety of target indications, we may expend our limited resources to pursue a particular product candidate and fail to capitalize on product candidates or indications that may be more profitable or for which there is a greater likelihood of success.

Because we have limited financial and managerial resources, we focus on specific product candidates, indications and development programs. We may also conduct several clinical trials for our product candidates in parallel over the next several years, which may make our decision as to which product candidates to focus on more difficult. For example, we plan to advance the MAD portion of the Phase 1 clinical trial for LP352 for the treatment of DEEs and other epileptic diseases in healthy volunteers in , and are currently planning to conduct a Phase 1b/2a clinical trial for LP352 for DEEs, including Dravet syndrome and Lennox-Gastaut syndrome, among others, in . Further, we are investigating in pre-clinical studies LP143 for neurodegenerative diseases associated with neuroinflammation caused by microglial activation, including ALS, and LP659 for CNS neuroinflammatory diseases. As a result, we may forgo or delay pursuit of opportunities with other product candidates or other indications that could have had greater commercial potential or likelihood of success. Our resource allocation decisions may cause us to fail to capitalize on viable commercial products or profitable market opportunities. Our spending on current and future research and development programs and product candidates for specific indications may not yield any commercially viable products. If we do not accurately evaluate the commercial potential or target market for a particular product candidate, we may relinquish valuable rights to that product candidate through future collaborations, licenses and other similar arrangements in cases in which it would have been more advantageous for us to retain sole development and commercialization rights to such product candidate.

Enrollment and retention of patients in clinical trials is an expensive and time-consuming process and could be made more difficult or rendered impossible by multiple factors outside our control.

Patient enrollment is a significant factor in the timing of clinical trials, and the timing of our clinical trials depends, in part, on the speed at which we can recruit patients to participate in our trials, as well as completion of

required follow-up periods. We may not be able to initiate or continue clinical trials for our product candidates if we are unable to locate and enroll a sufficient number of eligible patients to participate in these trials to such trial's conclusion as required by the FDA or other comparable foreign regulatory authorities. Additionally, certain clinical trials for future product candidates may be focused on indications with relatively small patient populations, which may further limit enrollment of eligible patients or may result in slower enrollment than we anticipate. The eligibility criteria of our clinical trials, once established, may further limit the pool of available trial participants. For example the number of patients suffering from DEEs, such as Dravet syndrome and Lennox-Gastaut syndrome and ALS, is small and, in some cases, has not been established with precision. If the actual number of patients with these diseases is smaller than we anticipate, we may encounter difficulties in enrolling patients in our clinical trials, thereby delaying or preventing development and approval of our product candidates. Even once enrolled we may be unable to retain a sufficient number of patients to complete any of our trials.

Patient enrollment and retention in clinical trials depends on many factors, including the size of the patient population, the severity of the disease under investigation, the nature of the trial protocol, the existing body of safety and efficacy data for the product candidate, the number and nature of competing treatments and ongoing clinical trials of competing therapies for the same indication, the proximity of patients to clinical sites, the eligibility criteria for the trial, the ability to adequately monitor patients during a trial, clinicians' and patients' perceptions as to the potential advantages of the product candidate being studied, and the risk that patients will drop out of a trial before completing all site visits. There are limited patient pools from which to draw in order to complete our clinical trials in a timely and cost-effective manner, including due to the fact that the neurological diseases we target are rare.

Furthermore, our efforts to build relationships with patient communities may not succeed, which could result in delays in patient enrollment in our clinical trials. In addition, any negative results we may report in clinical trials of our product candidate may make it difficult or impossible to recruit and retain patients in other clinical trials of that same product candidate. Delays or failures in planned patient enrollment or retention may result in increased costs, program delays or both, which could have a harmful effect on our ability to develop our product candidates, or could render further development impossible. For example, the impact of public health epidemics, such as the ongoing COVID-19 pandemic, may delay or prevent patients from enrolling or from receiving treatment in accordance with the protocol and the required timelines, which could delay our clinical trials, or prevent us or our partners from completing our clinical trials at all, and harm our ability to obtain approval for such product candidate. Further, if patients drop out of our clinical trials, miss scheduled doses or follow-up visits, or otherwise fail to follow clinical trial protocols, whether as a result of the COVID-19 pandemic and related illness or actions taken to slow the spread of COVID-19 or otherwise, the integrity of data from our clinical trials may be compromised or not accepted by the FDA or other regulatory authorities, which would represent a significant setback for the applicable program. In addition, we may rely on CROs and clinical trial sites to ensure proper and timely conduct of our future clinical trials and, while we intend to enter into agreements governing their services, we will be limited in our ability to compel their actual performance.

Preliminary, topline and interim data from our clinical trials that we announce or publish from time to time may change as more patient data become available and are subject to audit and verification procedures that could result in material changes in the final data.

From time to time, we may publicly disclose preliminary or topline data from our clinical trials, which are based on a preliminary analysis of then-available data, and the results and related findings and conclusions are subject to change following a more comprehensive review of the data related to the particular study or trial. We also make assumptions, estimations, calculations and conclusions as part of our analyses of data, and we may not have received or had the opportunity to fully and carefully evaluate all data. As a result, the topline results that we report may differ from future results of the same studies, or different conclusions or considerations may qualify such results, once additional data have been received and fully evaluated. Topline data also remain subject to audit and verification procedures that may result in the final data being materially different from the

preliminary data we previously published. As a result, topline data should be viewed with caution until the final data are available. From time to time, we may also disclose interim data from our clinical studies. Interim data from clinical trials that we may complete are subject to the risk that one or more of the clinical outcomes may materially change as patient enrollment continues and more patient data become available. Adverse differences between preliminary or interim data and final data could significantly harm our business prospects.

Further, others, including regulatory agencies, may not accept or agree with our assumptions, estimates, calculations, conclusions or analyses or may interpret or weigh the importance of data differently, which could impact the value of the particular program, the approvability or commercialization of the particular product candidate or product and our company in general. In addition, the information we choose to publicly disclose regarding a particular study or clinical trial is based on what is typically extensive information, and you or others may not agree with what we determine is the material or otherwise appropriate information to include in our disclosure, and any information we determine not to disclose may ultimately be deemed significant with respect to future decisions, conclusions, views, activities or otherwise regarding a particular product, product candidate or our business. If the topline data that we report differ from actual results, or if others, including regulatory authorities, disagree with the conclusions reached, our ability to obtain approval for, and commercialize, our product candidates may be harmed, which could harm our business, operating results, prospects or financial condition.

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

During the conduct of clinical trials, patients report changes in their health, including illnesses, injuries and discomforts, to their doctor. Often, it is not possible to determine whether or not the product candidate being studied caused these conditions. Regulatory authorities may draw different conclusions or require additional testing to confirm these determinations, if they occur.

In addition, it is possible that as we test our product candidates in larger, longer and more extensive clinical programs, or as use of these product candidates becomes more widespread if they receive regulatory approval, illnesses, injuries, discomforts and other AEs that were observed in earlier trials, as well as conditions that did not occur or went undetected in previous trials, will be reported by subjects. Many times, side effects are only detectable after investigational product candidates are tested in large-scale, Phase 3 trials or, in some cases, after they are made available to patients on a commercial scale after approval. Patients in our ongoing or planned clinical trials may experience similar or other side effects after treatment with one or more of our product candidates. If additional clinical experience indicates that any of our current product candidates and any future product candidates has serious or life-threatening side effects or other side effects that outweigh the potential therapeutic benefit, the development of the product candidate may fail or be delayed, or, if the product candidate has received regulatory approval, such approval may be revoked, which would harm our business, prospects, operating results and financial condition.

Moreover, if we elect, or are required, to delay, suspend or terminate any clinical trial of our product candidates, the commercial prospects of our product candidates may be harmed and our ability to generate revenue through their sale may be delayed or eliminated. Any of these occurrences may harm our business, financial condition and prospects significantly.

LP352, our most advanced product candidate, is an oral, centrally acting, highly selective 5-HT_{2c} superagonist with negligible observed impact on 5-HT_{2a} and 5-HT_{2b} receptor subtypes in our preclinical studies to date. 5-HT_{2a} and 5-HT_{2b} receptor subtypes have been known to be associated with significant adverse side effects. LP352 has the potential to be a clinically differentiated 5-HT_{2c} superagonist for patients with DEEs. For example, fenfluramine, marketed as FINTEPLA, a non-specific 5-HT₂ agonist, was recently approved for the treatment of seizures associated with Dravet syndrome by the FDA. Fenfluramine has been associated with

significant side effects and FINTEPLA has a REMS program requirement and a boxed warning. Another 5-HT2c agonist, lorcaserin, is also under evaluation for its potential to reduce seizures in patients with Dravet syndrome and refractory epilepsies. Lorcaserin was discovered by Arena and approved by the FDA for chronic weight management, marketed as BELVIQ by Eisai and withdrawn from the market at the request of the FDA based on a change in the FDA's risk-benefit assessment for the approved indication. However, the FDA authorized an expanded access program for patients with Dravet syndrome to continue to receive lorcaserin. LP352 was designed and developed by Arena to be the next generation to lorcaserin, with the goal of being a safer and more effective 5-HT2c agonist. We believe LP352's high selectivity and novel chemistry gives it the potential to reduce seizures in DEE patients and overcome the known or perceived safety limitations of available drugs in the 5-HT2 class. However, we may not be correct, and the selectivity, specificity or other attributes of LP352 may result in similar or less desirable clinical profiles than less selective and specific available drugs or other product candidates.

In addition, if any of our product candidates receive marketing approval, the FDA could require us to include a black box warning in our label or adopt REMS to ensure that the benefits outweigh its risks, which may include, among other things, a medication guide outlining the risks of the drug for distribution to patients and a communication plan to health care practitioners. Furthermore, if we or others later identify undesirable side effects caused by our product candidates, several other potentially significant negative consequences could result, including:

- regulatory authorities may suspend or withdraw approvals of such product candidate;
- regulatory authorities may require additional warnings on the label, including "boxed" warnings, or issue safety alerts, Dear Healthcare Provider letters, press releases or other communications containing warnings or other safety information about the product;
- we may be required to change the way a product candidate is administered or conduct additional clinical trials;
- we could be sued and held liable for harm caused to patients;
- we may need to conduct a recall; and
- our reputation may suffer.

Any of these events could prevent us from achieving or maintaining market acceptance of our product candidates and could significantly harm our business, prospects, financial condition and results of operations.

We may explore strategic collaborations that may never materialize or may fail.

We intend to broaden the global reach of our platform by selectively collaborating with leading biopharmaceutical companies. We intend to retain significant economic and commercial rights to our programs in key geographic areas that are core to our long-term strategy. As a result, we intend to periodically explore a variety of possible additional strategic collaborations in an effort to gain access to additional product candidates or resources. At the current time, we cannot predict what form such a strategic collaboration might take. We are likely to face significant competition in seeking appropriate strategic collaborators, and strategic collaborations can be complicated and time consuming to negotiate and document. We may not be able to negotiate strategic collaborations on acceptable terms, or at all. We are unable to predict when, if ever, we will enter into any additional strategic collaborations because of the numerous risks and uncertainties associated with establishing them.

If the market opportunities for our product candidates are smaller than we estimate, even assuming approval of a product candidate, our business may suffer. Because the patient populations in the market for our product candidates may be small, we must be able to successfully identify patients and acquire a significant market share to achieve profitability and growth.

We focus on developing novel medicines for neurological diseases. Given the small number of patients who have the diseases that we are targeting, our eligible patient population and pricing estimates may differ significantly from the actual market addressable by our product candidates. Our projections of both the number of people who have these diseases, as well as the subset of people with these diseases who have the potential to benefit from treatment with our product candidates, are based on estimates that have been derived from a variety of sources, including scientific literature, patient foundations, or market research, and which may prove to be incorrect. Further, new studies may change the estimated incidence or prevalence of these diseases. The number of patients may turn out to be lower than expected. Likewise, the potentially addressable patient population for each of our product candidates may be limited or may not be amenable to treatment with our product candidates, and new patients may become increasingly difficult to identify or gain access to, which would adversely affect our results of operations and our business.

We face substantial competition, which may result in others discovering, developing or commercializing products before or more successfully than us.

The development and commercialization of pharmaceutical products is highly competitive. We face competition with respect to our current product candidates and will face competition with respect to any other product candidates that we may seek to develop or commercialize in the future, from major pharmaceutical companies, specialty pharmaceutical companies and biotechnology companies worldwide. There are a number of large pharmaceutical and biotechnology companies that currently market and sell products or are pursuing the development of product candidates for the treatment of the indications that we are pursuing. Potential competitors also include academic institutions, government agencies and other public and private research organizations that conduct research, seek patent protection and establish collaborative arrangements for research, development, manufacturing and commercialization.

DEEs are commonly treated with multiple combinations of antiepileptic drugs (AEDs) though physician preference for administered therapies differs across different epilepsy types. Pharmaceutical companies, such as Eisai, Lundbeck, Pfizer, and UCB have approved AEDs for the treatment of epilepsies. There are also non-pharmaceutical therapies for epilepsy patients, such as a ketogenic diet, vagus nerve stimulation, and surgery for some patients. Recently, two companies have obtained FDA approval for symptoms associated with DEEs. Fenfluramine was approved for the treatment of seizures associated with Dravet syndrome in June 2020, and became available through a REMS program in July 2020, and cannabidiol was approved by the FDA for the treatment of seizures associated with Dravet syndrome and Lennox-Gastaut syndrome in 2018. Lorcaserin also is in a Phase 3 clinical trial for the treatment of seizures associated with Dravet syndrome. In addition, other companies are developing therapeutics for the treatment of epilepsies, including alternative approaches such as gene therapy.

There is currently no cure for ALS. Rilutek (riluzole) and Radicava (edaravone) are the only FDA approved drugs that have been observed to slow disease progression in ALS. There are a number of companies seeking to develop treatments for ALS.

In the S1P receptor modulator space, there are three drugs that have been approved by the FDA for the treatment of certain indications in multiple sclerosis: fingolimod, ozanimod, and siponimod. There are multiple additional S1P receptor modulators in development for additional therapeutic indications beyond multiple sclerosis, including in other neurodegenerative diseases. There are also numerous other drugs and product candidates in development for indications for which we might develop our product candidates.

Additional, potential competitors include academic institutions, government agencies and other public and private research organizations that conduct research, seek patent protection and establish collaborative arrangements for research, development, manufacturing and commercialization.

There are a number of large pharmaceutical and biotechnology companies that currently market and sell products or are pursuing the development of product candidates for the treatment of the indications that we are pursuing. More established companies may have a competitive advantage over us due to their greater size, resources and institutional experience. In particular, these companies have greater experience and expertise in securing reimbursement, government contracts, relationships with key opinion leaders, conducting testing and clinical trials, obtaining and maintaining regulatory approvals and distribution relationships to market products, and marketing approved drugs. These companies also have significantly greater research and marketing capabilities than we do. If we are not able to compete effectively against existing and potential competitors, our business and financial condition may be harmed.

The key competitive factors affecting the success of our product candidates are likely to be their efficacy and safety, the scope and limitations of marketing approval, success of regulatory approval, successful protection of our intellectual property, and the availability of funding and reimbursement.

As a result of these factors, our competitors may obtain regulatory approval of their drugs before we are able to, which may limit our ability to develop or commercialize our product candidates. Our competitors may also develop therapies that are safer, more effective, more widely accepted and cheaper than ours, and may also be more successful than us in manufacturing and marketing their drugs. These appreciable advantages could render our product candidates obsolete or non-competitive before we can recover the expenses of such product candidates' development and commercialization.

Mergers and acquisitions in the pharmaceutical and biotechnology industries may result in even more resources being concentrated among a smaller number of our competitors. Smaller and other early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. These third parties compete with us in recruiting and retaining qualified scientific, management and commercial personnel, establishing clinical trial sites and subject registration for clinical trials, as well as in acquiring technologies complementary to, or necessary for, our programs.

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 product candidates, our business will be substantially harmed.

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 product candidate's clinical development and may vary among jurisdictions. We have not obtained regulatory approval for any product candidate and it is possible that any product candidates we may seek to develop in the future will never obtain regulatory approval. Neither we nor any future collaborator is permitted to market any of our product candidates in the United States until we receive regulatory approval of an NDA from the FDA.

Prior to obtaining approval to commercialize a product candidate in the United States or abroad, we or our collaborators must demonstrate with substantial evidence from well-controlled clinical trials, and to the satisfaction of the FDA or foreign regulatory agencies, that such product candidates are safe and effective for their intended uses. Results from nonclinical studies and clinical trials can be interpreted in different ways. Even if we believe the nonclinical or clinical data for our product candidates are promising, such data may not be sufficient to support approval by the FDA and other regulatory authorities. The FDA may also require us to conduct additional preclinical studies or clinical trials for our product candidates either prior to or post-approval, or it may object to elements of our clinical development program.

[Table of Contents](#)

The FDA or any foreign regulatory bodies can delay, limit or deny approval of our product candidates or require us to conduct additional nonclinical or clinical testing or abandon a program for, including the following:

- the FDA or comparable foreign regulatory authorities may disagree with the design or implementation of our clinical trials;
- we may be unable to demonstrate to the satisfaction of the FDA or comparable foreign regulatory authorities that a product candidate is safe and effective for its proposed indication;
- the results of clinical trials may not meet the level of statistical significance required by the FDA or comparable foreign regulatory authorities for approval;
- serious and unexpected drug-related side effects experienced by participants in our clinical trials or by individuals using drugs similar to our product candidates;
- we may be unable to demonstrate that a product candidate's clinical and other benefits outweigh its safety risks;
- the FDA or comparable foreign regulatory authorities may disagree with our interpretation of data from preclinical studies or clinical trials;
- the data collected from clinical trials of our product candidates may not be acceptable or sufficient to support the submission of an NDA or other submission or to obtain regulatory approval in the United States or elsewhere, and we may be required to conduct additional clinical studies;
- the FDA's or the applicable foreign regulatory authority may disagree regarding the formulation, labeling and/or the specifications of our product candidates;
- the FDA or comparable foreign regulatory authorities may fail to approve the manufacturing processes or facilities of third-party manufacturers with which we contract for clinical and commercial supplies; and
- 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.

Of the large number of products in development, only a small percentage successfully complete the FDA or foreign regulatory approval processes and are commercialized. The lengthy approval process as well as the unpredictability of future clinical trial results may result in our failing to obtain regulatory approval to market our product candidates, which would significantly harm our business, results of operations and prospects.

Even if our current or future product candidates receive marketing approval, they may fail to achieve market acceptance by physicians, patients, third-party payors or others in the medical community necessary for commercial success.

Even if our current or future product candidates receive marketing approval, they may fail to gain sufficient market acceptance by physicians, patients, third-party payors and others in the medical community. If they do not achieve an adequate level of acceptance, we may not generate significant product revenue and may not become profitable. The degree of market acceptance of our current or future product candidates, if approved for commercial sale, will depend on a number of factors, including but not limited to:

- the clinical indications for which the product candidate is approved;
- the efficacy and potential advantages compared to alternative treatments and therapies;
- the timing of market introduction of the product as well as competitive products;
- effectiveness of sales and marketing efforts;
- the strength of our relationships with patient communities;
- the cost of treatment in relation to alternative treatments and therapies, including any similar generic treatments;

[Table of Contents](#)

- our ability to offer such product for sale at competitive prices;
- the convenience and ease of administration compared to alternative treatments and therapies;
- the willingness of the target patient population to try new therapies and of physicians to prescribe these therapies;
- the willingness of patients to pay out-of-pocket in the absence of coverage and adequate reimbursement by third-party payors and government authorities;
- the strength of marketing and distribution support;
- the availability of third-party coverage and adequate reimbursement;
- the prevalence and severity of any side effects; and
- any restrictions on the use of the product together with other medications.

Our efforts to educate physicians, patients, third-party payors and others in the medical community on the benefits of our product candidates may require significant resources and may never be successful. Such efforts may require more resources than are typically required due to the complexity and uniqueness of our product candidates.

In addition, if approved, LP352 may face challenges in gaining market acceptance by physicians, patients, third-party payors or others in the medical community as a result of it being a 5-HT_{2c} agonist, which is part of an agonist class associated with significant risks and side effects. For example, fenfluramine, marketed as FINTEPLA, is a non-specific 5-HT₂ agonist, has been associated with significant side effects and FINTEPLA has a REMS program requirement and a boxed warning. Another 5-HT_{2c} agonist, lorcaserin, is also under evaluation for its potential to reduce seizures in patients with Dravet syndrome and refractory epilepsies. Lorcaserin was discovered by Arena and approved by the FDA for chronic weight management, marketed as BELVIQ by Eisai and withdrawn from the market at the request of the FDA based on a change in the FDA's risk-benefit assessment for the approved indication. However, the FDA authorized an expanded access program for patients with Dravet syndrome to continue to receive lorcaserin.

Although we aim to improve upon current 5-HT_{2c} agonist product profiles with LP352, which was designed to be the next generation to lorcaserin, with the goal of being a safer and more effective 5-HT_{2c} agonist, and which we believe has the potential to overcome the limitations of the currently available 5-HT₂ class, if we are unable to do so and to educate physicians, patients, third-party payors and others in the medical community about this product candidate and successfully distinguish the safety profile of this product candidate to those of other products in the 5-HT_{2c} agonist class, we may fail to gain market acceptance of LP352.

Because we expect sales of our product candidates, if approved, to generate substantially all of our revenues for the foreseeable future, the failure of our product candidates, if approved, to find market acceptance would harm our business and could require us to seek additional financing.

Even if we obtain regulatory approval for our current or future product candidates, they will remain subject to ongoing regulatory oversight.

Even if we obtain any regulatory approval for our current or any future product candidates, such approvals will be subject to ongoing regulatory requirements for manufacturing, labeling, packaging, storage, advertising, promotion, sampling, record-keeping and submission of safety and other post-market information. These requirements include submissions of safety and other post-marketing information and reports, registration, as well as on-going compliance with cGMPs and GCPs for any clinical trials that we may conduct post-approval. Any regulatory approvals that we receive for our current or future product candidates may also be subject to a

[Table of Contents](#)

REMS, limitations on the approved indicated uses for which the drug may be marketed or to the conditions of approval, or contain requirements for potentially costly post-marketing testing, including Phase 4 trials, and surveillance to monitor the quality, safety and efficacy of the drug.

In addition, drug manufacturers and their facilities are subject to payment of user fees and continual review and periodic inspections by the FDA and other regulatory authorities for compliance with current good manufacturing practices (cGMP) requirements and adherence to commitments made in the NDA or foreign marketing application. If we, or a regulatory authority, discover previously unknown problems with a drug, such as AEs of unanticipated severity or frequency, or problems with the facility where the drug is manufactured or if a regulatory authority disagrees with the promotion, marketing or labeling of that drug, a regulatory authority may impose restrictions relative to that drug, the manufacturing facility or us, including requesting a recall or requiring withdrawal of the drug from the market or suspension of manufacturing.

If we fail to comply with applicable regulatory requirements following approval of our current or future product candidates, a regulatory authority may:

- issue an untitled letter or warning letter asserting that we are in violation of the law;
- seek an injunction or impose administrative, civil or criminal penalties or monetary fines;
- suspend or withdraw regulatory approval;
- suspend any ongoing clinical trials;
- refuse to approve a pending NDA or NDA supplement, or comparable foreign marketing application (or any supplements thereto) submitted by us or our strategic partners;
- restrict or suspend the marketing or manufacturing of the drug;
- seize or detain the drug or otherwise require the withdrawal of the drug from the market;
- refuse to permit the import or export of product candidates; 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 current or future product candidates and harm our business, financial condition, results of operations and prospects.

In addition, the FDA's policies, and those of equivalent foreign regulatory agencies, may change and additional government regulations may be enacted that could cause changes to or delays in the drug review process, or suspend or restrict regulatory approval of our product candidates. We cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative action, either in the United States or abroad. If we are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we are not able to maintain regulatory compliance, we may lose any marketing approval that we may have obtained and we may not achieve or sustain profitability, which would harm our business, financial condition, results of operations and prospects.

We currently have no marketing and sales organization and have no experience as a company in commercializing products, and we may have to invest significant resources to develop these capabilities. If we are unable to establish marketing and sales capabilities or enter into agreements with third parties to market and sell our products, we may not be able to generate product revenue.

We have no internal sales, marketing or distribution capabilities, nor have we commercialized a product. If any of our product candidates ultimately receives regulatory approval, we must build a marketing and sales

organization with technical expertise and supporting distribution capabilities to commercialize each such product in the markets that we target, which will be expensive and time consuming, or collaborate with third parties that have direct sales forces and established distribution systems, either to augment our own sales force and distribution systems or in lieu of our own sales force and distribution systems. We currently plan to independently commercialize our product candidates in the United States by establishing a focused sales force and marketing infrastructure. We may opportunistically seek additional strategic collaborations to maximize the commercial opportunities for our product candidates outside of the United States. We have no prior experience as a company in the marketing, sale and distribution of biopharmaceutical products and there are significant risks involved in building and managing a sales organization, including our ability to hire, retain and incentivize qualified individuals, generate sufficient sales leads, provide adequate training to sales and marketing personnel and effectively manage a geographically dispersed sales and marketing team. Any failure or delay in the development of our internal sales, marketing and distribution capabilities would adversely impact the commercialization of these products. We may not be able to enter into collaborations or hire consultants or external service providers to assist us in sales, marketing and distribution functions on acceptable financial terms, or at all. In addition, our product revenues and our profitability, if any, may be lower if we rely on third parties for these functions than if we were to market, sell and distribute any products that we develop ourselves. We likely will have little control over such third parties, and any of them may fail to devote the necessary resources and attention to sell and market our products effectively. If we are not successful in commercializing our products, either on our own or through arrangements with one or more third parties, we may not be able to generate any future product revenue and we would incur significant additional losses.

Obtaining and maintaining regulatory approval of our product candidates in one jurisdiction does not mean that we will be successful in obtaining regulatory approval of our product candidates in other jurisdictions.

Obtaining and maintaining regulatory approval of our product candidates in one jurisdiction does not guarantee that we will be able to obtain or maintain regulatory approval in any other jurisdiction. For example, even if the FDA grants regulatory approval of a product candidate, comparable regulatory authorities in foreign jurisdictions must also approve the manufacturing, marketing and promotion and reimbursement of the product candidate in those countries. However, a failure or delay in obtaining regulatory approval in one the regulatory approval process in others. Approval procedures vary among jurisdictions and can involve requirements and administrative review periods different from those in the United States, including additional preclinical studies or clinical trials as clinical trials conducted in one jurisdiction may not be accepted by regulatory authorities in other jurisdictions. In many jurisdictions outside the United States, a product candidate must be approved for reimbursement before it can be approved for sale in that jurisdiction. In some cases, the price that we intend to charge for our products is also subject to approval.

Obtaining foreign regulatory approvals and establishing and maintaining compliance with foreign regulatory requirements could result in significant delays, difficulties and costs for us and could delay or prevent the introduction of our products in certain countries. If we or any future collaborator fail to comply with the regulatory requirements in international markets or fail to receive applicable marketing approvals, our target market will be reduced and our ability to realize the full market potential of our product candidates will be harmed.

Product liability lawsuits against us could cause us to incur substantial liabilities and could limit commercialization of any product candidate that we may develop.

We face an inherent risk of product liability exposure related to the testing of our current and any future product candidates in clinical trials and may face an even greater risk if we commercialize any product candidate that we may develop. If we cannot successfully defend ourselves against claims that any such product candidates caused injuries, we could incur substantial liabilities. Regardless of merit or eventual outcome, liability claims may result in:

- decreased demand for any product candidate that we may develop;

- product recalls, withdrawals or labeling, marketing or promotional restrictions;
- loss of revenue;
- substantial monetary awards to trial participants or patients;
- significant time and costs to defend the related litigation;
- a diversion of management's time and our resources;
- withdrawal of clinical trial participants;
- initiation of investigations by regulators;
- the inability to commercialize any product candidate that we may develop;
- injury to our reputation and significant negative media attention; and
- a decline in our share price.

Any product liability insurance coverage that we obtain and maintain may not be adequate to cover all liabilities that we may incur. We anticipate that we will need to increase our insurance coverage each time we commence a clinical trial and if we successfully commercialize any product candidate. Insurance coverage is increasingly expensive. We may not be able to obtain or maintain insurance coverage at a reasonable cost or in an amount adequate to satisfy any liability that may arise.

Risks Related to Regulatory Compliance

Our relationships with customers, physicians, and third-party payors may be subject, directly or indirectly, to federal and state healthcare fraud and abuse laws, false claims laws, health information privacy and security laws, and other healthcare laws and regulations. If we are unable to comply, or have not fully complied, with such laws, we could face substantial penalties.

Healthcare providers, including physicians, and third-party payors in the United States and elsewhere will play a primary role in the recommendation and prescription of any product candidates for which we obtain marketing approval. Our current and future arrangements with healthcare professionals, principal investigators, consultants, customers and third-party payors may subject us to various federal and state fraud and abuse laws and other healthcare laws, including, without limitation, the federal Anti-Kickback Statute, the federal civil and criminal false claims laws and the law commonly referred to as the Physician Payments Sunshine Act and regulations. These laws will impact, among other things, our clinical research, as well as our proposed sales, marketing and educational programs. In addition, we may be subject to data privacy and security laws by both the federal government and the states in which we conduct or may conduct our business. The laws that will affect our operations include, but are not limited to:

- the federal Anti-Kickback Statute, which prohibits, among other things, persons or entities from knowingly and willfully soliciting, receiving, offering or paying any remuneration (including any kickback, bribe or rebate), directly or indirectly, overtly or covertly, in cash or in kind, in return for the purchase, recommendation, leasing or furnishing of an item or service reimbursable under a federal healthcare program, such as the Medicare and Medicaid programs. This statute has been interpreted to apply to, among other things, arrangements between pharmaceutical manufacturers on the one hand, and prescribers, purchasers and formulary managers on the other. A person or entity does not need to have actual knowledge of this statute or specific intent to violate it in order to have committed a violation;
- federal civil and criminal false claims laws, including, without limitation, the False Claims Act, and civil monetary penalty laws which prohibit, among other things, individuals or entities from knowingly presenting, or causing to be presented, claims for payment or approval from Medicare, Medicaid or other government payors that are false or fraudulent or making a false statement to avoid, decrease or conceal an obligation to pay money to the federal government. In addition, the government may assert that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the federal False Claims Act;

- the federal Health Insurance Portability and Accountability Act of 1996 (HIPAA), which created additional federal criminal statutes that prohibit, among other things, a person from knowingly and willfully executing a scheme or making false or fraudulent statements to defraud any healthcare benefit program, regardless of the payor (e.g., public or private). Similar to the federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of this statute or specific intent to violate it in order to have committed a violation;
- HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act (HITECH) and their implementing regulations, which imposes certain requirements relating to the privacy, security and transmission of individually identifiable health information without appropriate authorization by entities subject to the rule, such as health plans, healthcare clearinghouses and certain healthcare providers, known as covered entities, and their respective business associates, individuals or entities that perform certain services on behalf of a covered entity that involves the use or disclosure of individually identifiable health information and their subcontractors that use, disclose or otherwise process individually identifiable health information;
- The Physician Payments Sunshine Act, which requires 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 specific exceptions, to report annually to the Centers for Medicare & Medicaid Services (CMS), information related to: (i) payments or other “transfers of value” made to physicians (defined to include doctors, dentists, optometrists, podiatrists and chiropractors) and teaching hospitals, which will be expanded beginning in 2022, to require applicable manufacturers to report information related to payments and other transfers of value provided to physician assistants, nurse practitioners, clinical nurse specialists, certified registered nurse anesthetists and certified nurse midwives during the previous year; and (ii) ownership and investment interests held by physicians and their immediate family members;
- state and foreign law equivalents of each of the above federal laws, state laws that require manufacturers to report information related to payments and other transfers of value to physicians and other healthcare providers or marketing expenditures and/or information regarding drug pricing, state laws that require pharmaceutical companies to comply with the pharmaceutical industry’s voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government or to adopt compliance programs as prescribed by state laws and regulations, or that otherwise restrict payments that may be made to healthcare providers, state laws and regulations that require drug manufacturers to file reports relating to drug pricing and marketing information, and state and local laws that require the registration of pharmaceutical sales representatives; and
- state and foreign laws that govern the privacy and security of health information in some circumstances, many of which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts.

Because of the breadth of these laws and the narrowness of the statutory exceptions and regulatory safe harbors available, it is possible that some of our business activities could be subject to challenge under one or more of such laws.

It is possible that governmental authorities will conclude that our business practices may not comply with current or future statutes, regulations or case law involving applicable fraud and abuse or other healthcare laws and regulations. If our operations are found to be in violation of any of these laws or any other governmental regulations that may apply to us, we may be subject to significant civil, criminal and administrative penalties, damages, fines, disgorgement, imprisonment, exclusion from participation in government funded healthcare programs, such as Medicare and Medicaid, additional reporting requirements and oversight if we become subject to a corporate integrity agreement or similar agreement to resolve allegations of non-compliance with these laws and the curtailment or restructuring of our operations.

Efforts to ensure that our business arrangements with third parties will comply with applicable healthcare laws and regulations will involve substantial costs. Any action against us for violation of these laws, even if we successfully defend against it, could cause us to incur significant legal expenses and divert our management's attention from the operation of our business. The shifting compliance environment and the need to build and maintain robust and expandable systems to comply with multiple jurisdictions with different compliance and/or reporting requirements increases the possibility that a healthcare company may run afoul of one or more of the requirements.

Coverage and adequate reimbursement may not be available for our current or any future product candidates, which could make it difficult for us to sell profitably, if approved.

Market acceptance and sales of any product candidates that we commercialize, if approved, will depend in part on the extent to which coverage and adequate reimbursement for these drugs and related treatments will be available from third-party payors, including government health administration authorities, managed care organizations and other private health insurers. Third-party payors decide which therapies they will pay for and establish reimbursement levels. Third-party payors often rely upon Medicare coverage policy and payment limitations in setting their own coverage and reimbursement policies. However, decisions regarding the extent of coverage and amount of reimbursement to be provided for any product candidates that we develop will be made on a payor-by-payor basis. One third-party payor's determination to provide coverage for a drug does not assure that other payors will also provide coverage, and adequate reimbursement, for the drug. Additionally, a third-party payor's decision to provide coverage for a therapy does not imply that an adequate reimbursement rate will be approved. Each third-party payor determines whether or not it will provide coverage for a therapy, what amount it will pay the manufacturer for the therapy, and on what tier of its formulary it will be placed. The position on a third-party payor's list of covered drugs, or formulary, generally determines the co-payment that a patient will need to make to obtain the therapy and can strongly influence the adoption of such therapy by patients and physicians. Patients who are prescribed treatments for their conditions and providers prescribing such services generally rely on third-party payors to reimburse all or part of the associated healthcare costs. Patients are unlikely to use our drugs unless coverage is provided and reimbursement is adequate to cover a significant portion of the cost of our drugs.

A primary trend in the U.S. healthcare industry and elsewhere is cost containment. Third-party payors have attempted to control costs by limiting coverage and the amount of reimbursement for particular medications. We cannot be sure that coverage and reimbursement will be available for any drug that we commercialize and, if reimbursement is available, what the level of reimbursement will be. Inadequate coverage and reimbursement may impact the demand for, or the price of, any drug for which we obtain marketing approval. If coverage and adequate reimbursement are not available, or are available only to limited levels, we may not be able to successfully commercialize our current and any future product candidates that we develop. Further, coverage policies and third-party payor reimbursement rates may change at any time. Therefore, even if favorable coverage and reimbursement status is attained for one or more products for which we receive regulatory approval, less favorable coverage policies and reimbursement rates may be implemented in the future.

Healthcare legislative reform measures may have a negative impact on our business and results of operations.

In the United States and some foreign jurisdictions, there have been, and continue to be, several legislative and regulatory changes and proposed changes regarding the healthcare system that could prevent or delay marketing approval of product candidates, restrict or regulate post-approval activities, and affect our ability to profitably sell any product candidates for which we obtain marketing approval.

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 (collectively, the ACA), was passed, which substantially changed the way healthcare is financed by both the government and private insurers, and significantly impacts the U.S. pharmaceutical industry.

There remain judicial, Congressional and executive branch challenges to certain aspects of the ACA, and we expect there will be additional challenges and amendments to the ACA in the future. By way of example, effective January 1, 2019, for not complying with the ACA's individual mandate to carry health insurance, eliminating the implementation of certain ACA-mandated fees, and increasing the point-of-sale discount that is owed by pharmaceutical manufacturers who participate in Medicare Part D. Additionally, the 2020 federal spending package permanently eliminated, effective January 1, 2020, the ACA-mandated "Cadillac" tax on high-cost employer-sponsored health coverage and, effective January 1, 2021, also eliminated the health insurer tax. On December 14, 2018, a Texas U.S. District Court Judge ruled that the ACA is unconstitutional in its entirety because the "individual mandate" was repealed by Congress as part of legislation enacted in 2017, informally titled the Tax Cuts and Jobs Act (Tax Act). On December 18, 2019, the U.S. Court of Appeals for the 5th Circuit upheld the District Court ruling that the individual mandate was unconstitutional and remanded the case back to the District Court to determine whether the remaining provisions of the ACA are invalid as well. The United States Supreme Court is in the process of reviewing this case but it is unclear when a decision will be made. It is also unclear how such litigation and other efforts to challenge, repeal, or replace the ACA will impact the ACA and our business.

Other legislative changes have been proposed and adopted since the ACA was enacted. These changes include aggregate reductions to Medicare payments to providers of 2% per fiscal year pursuant to the Budget Control Act of 2011, which went into effect on April 1, 2013, and due to subsequent legislative amendments to the statute, will remain in effect through 2030, with the exception of a temporary suspension from May 1, 2020 through December 31, 2020, unless additional Congressional action is taken. The American Taxpayer Relief Act of 2012, among other things, further reduced Medicare payments to several providers, including hospitals and cancer treatment centers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years.

Additional changes that may affect our business include the expansion of new programs such as Medicare payment for performance initiatives for physicians under the Medicare Access and CHIP Reauthorization Act of 2015 (MACRA) which ended the use of the statutory formula and established a quality payment program, also referred to as the Quality Payment Program. In November 2019, CMS issued a final rule finalizing the changes to the Quality Payment Program. At this time, it is unclear how the introduction of the Quality Payment Program will impact overall physician reimbursement.

Also, there has been heightened governmental scrutiny recently over the manner in which drug manufacturers set prices for their marketed products, which have resulted in several Congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for drug products. Although a number of these, and other proposed measures may require additional authorization to become effective, the probability of success of these and any other Trump administration reform initiatives is uncertain, particularly in light of the new incoming Presidential administration.

We cannot predict what healthcare reform initiatives may be adopted in the future, particularly in light of the recent presidential election. We expect that these and other healthcare reform measures that 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 drug. 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 drugs. Further, it is possible that additional governmental action is taken in response to address the ongoing COVID-19 pandemic.

If any of our current or future product candidates are approved for marketing, and we are found to have improperly promoted off-label uses, or if physicians prescribe or use any of our current or future product candidates off-label, we may become subject to prohibitions on the sale or marketing of any of our current or future product candidates, significant fines, penalties, sanctions, or product liability claims, and our image and reputation within the industry and marketplace could be harmed.

The FDA, DOJ, and comparable foreign authorities strictly regulate the marketing and promotional claims that are made about pharmaceutical products, including our product candidates LP352, LP143 and LP659. In particular, a product may not be promoted for uses or indications that are not approved by the FDA or comparable foreign authorities as reflected in the product's approved labeling. However, if we receive marketing approval for any current or future product candidates, physicians can prescribe such product to their patients in a manner that is inconsistent with the approved label. If we are found to have promoted such off-label uses, we may receive warning letters from the FDA and comparable foreign authorities and become subject to significant liability, which would materially harm our business. The federal government has levied large civil and criminal fines against companies for alleged improper promotion and has enjoined several companies from engaging in off-label promotion. If we become the target of such an investigation or prosecution based on our marketing and promotional practices, we could face similar sanctions, which would materially harm our business. In addition, management's attention could be diverted from our business operations, significant legal expenses could be incurred, and our reputation could be damaged. The FDA and other governmental authorities have also required that companies enter into consent decrees or permanent injunctions under which specified promotional conduct is changed or curtailed in order to resolve enforcement actions. If we are deemed by the FDA, DOJ, or other governmental authorities to have engaged in the promotion of any current or future product candidates for off-label use, we could be subject to certain prohibitions or other restrictions on the sale or marketing and other operations or significant fines and penalties, and the imposition of these sanctions could also affect our reputation and position within the industry.

We may not be able to obtain or maintain orphan drug designations or exclusivity for our product candidates, which could limit the potential profitability of our product candidates.

Regulatory authorities in some jurisdictions, including the United States, may designate drugs for relatively small patient populations as orphan drugs. Under the Orphan Drug Act of 1983, the FDA may designate a drug as an orphan drug if it is a drug intended to treat a rare disease or condition, which is generally defined as a patient population of fewer than 200,000 individuals in the United States. In the United States, orphan drug designation entitles a party to financial incentives such as opportunities for grant funding towards clinical trial costs, tax advantages and application fee waivers. After the FDA grants orphan drug designation, the generic identity of the drug and its potential orphan use are disclosed publicly by the FDA. Orphan drug designation, however, neither shortens the development time or regulatory review time of a drug nor gives the drug any advantage in the regulatory review or approval process. Generally, if a drug with an orphan drug designation subsequently receives the first marketing approval for an indication for which it receives the designation, then the drug is entitled to a period of marketing exclusivity that precludes the applicable regulatory authority from approving another marketing application for the same drug for the same indication for the exclusivity period except in limited situations. For purposes of small molecule drugs, the FDA defines "same drug" as a drug that contains the same active moiety and is intended for the same use as the drug in question. A designated orphan drug may not receive orphan drug exclusivity if it is approved for a use that is broader than the indication for which it received orphan designation.

We intend to pursue orphan drug designation for our one or more of our product candidates, as well as for potential other future product candidates. Obtaining orphan drug designations is important to our business strategy; however, obtaining an orphan drug designation can be difficult and we may not be successful in doing

so. Even if we were to obtain orphan drug designation for a product candidate, we may not obtain orphan exclusivity and that exclusivity may not effectively protect the drug from the competition of different drugs for the same condition, which could be approved during the exclusivity period. Additionally, after an orphan drug is approved, the FDA could subsequently approve another application for the same drug for the same indication if the FDA concludes that the later drug is shown to be safer, more effective or makes a major contribution to patient care. Orphan drug exclusive marketing rights in the United States also may be lost if the FDA later determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantity of the drug to meet the needs of patients with the rare disease or condition. The failure to obtain an orphan drug designation for any product candidates we may develop, the inability to maintain that designation for the duration of the applicable period, or the inability to obtain or maintain orphan drug exclusivity could reduce our ability to make sufficient sales of the applicable product candidate to balance our expenses incurred to develop it, which would have a negative impact on our operational results and financial condition.

Disruptions at the FDA and other government agencies caused by funding shortages or global health concerns could hinder their ability to hire, retain or deploy key leadership and other personnel, or otherwise prevent new or modified products from being developed, approved or commercialized in a timely manner or at all, which could negatively impact our business.

The ability of the FDA to review and approve new products can be affected by a variety of factors, including government budget and funding levels, ability to hire and retain key personnel and accept the payment of user fees, and statutory, regulatory, and policy changes. Average review times at the FDA have fluctuated in recent years as a result. In addition, government funding of other government agencies that fund research and development activities is subject to the political process, which is inherently fluid and unpredictable.

Disruptions at the FDA and other agencies may also slow the time necessary for new drugs to be reviewed and/or approved by necessary government agencies, which would adversely affect our business. For example, over the last several years, including for 35 days beginning on December 22, 2018, the U.S. government has shut down several times and certain regulatory agencies, such as the FDA, have had to furlough critical FDA employees and stop critical activities. If a prolonged government shutdown occurs, it could significantly impact the ability of the FDA to timely review and process our regulatory submissions, which could have a material adverse effect on our business.

Separately, in response to the global COVID-19 pandemic, on March 10, 2020, the FDA announced its intention to postpone most foreign inspections of manufacturing facilities and products through April 2020, and subsequently, and on March 18, 2020, the FDA temporarily postponed routine surveillance inspections of domestic manufacturing facilities. On July 10, 2020, the FDA announced its intention to restart routine pre-announced surveillance inspections of domestic manufacturing facilities subject to a risk-based prioritization system. The FDA intends to use this risk-based assessment system to identify the categories of regulatory activity that can occur within a given geographic area, ranging from mission critical inspections to resumption of all regulatory activities. Regulatory authorities outside the United States may adopt similar restrictions or other policy measures in response to the COVID-19 pandemic. If a prolonged government shutdown occurs, or if global health concerns continue to prevent the FDA or other regulatory authorities from conducting their regular inspections, reviews, or other regulatory activities, it could significantly impact the ability of the FDA or other regulatory authorities to timely review and process our regulatory submissions, which could have a material adverse effect on our business.

Risks Related to Our Intellectual Property

We depend on intellectual property licensed from Arena, the termination of which could result in the loss of significant rights, which would harm our business.

We are dependent on technology, patents, know-how, and proprietary materials, both our own and licensed from Arena. We entered into the Arena License Agreement in October 2020 pursuant to which we acquired an

exclusive, royalty bearing, sublicensable, worldwide license to develop and commercialize LP352 for any use in humans, LP143 for the treatment of any CNS indication, and LP659 for the treatment of selected CNS indications (pharmaceutical products containing any such compounds, the Licensed Products). Any termination of this license will result in the loss of significant rights and will restrict our ability to develop and commercialize our product candidates. See “Business—License Agreement with Arena” for a description of the Arena License Agreement, which includes a description of the termination provision of this agreement. If we or Arena fails to adequately protect this intellectual property, our ability to commercialize these compounds could suffer.

In addition, agreements under which we license intellectual property or technology to or from third parties may be complex, and certain provisions in such agreements may be susceptible to multiple interpretations. The resolution of any contract interpretation disagreement that may arise could narrow what we believe to be the scope of our rights to the relevant intellectual property or technology or increase what we believe to be our financial or other obligations under the relevant agreement, either of which could have a material adverse effect on our business, financial condition, results of operations and prospects. Moreover, if disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements on commercially acceptable terms, we may be unable to successfully develop and commercialize the affected product candidates. Our business also would suffer if any current or future licensors fail to abide by the terms of the license, if the licensors fail to enforce licensed patents against infringing third parties, if the licensed patents or other rights are found to be invalid or unenforceable, or if we are unable to enter into necessary licenses on acceptable terms. Moreover, our licensors may own or control intellectual property that has not been licensed to us and, as a result, we may be subject to claims, regardless of their merit, that we are infringing or otherwise violating the licensor’s rights.

Furthermore, while we cannot currently determine the amount of the royalty obligations we would be required to pay on sales of future products, if any, the amounts may be significant. The amount of our future royalty obligations will depend on the technology and intellectual property we use in products that we successfully develop and commercialize, if any. Therefore, even if we successfully develop and commercialize products, we may be unable to achieve or maintain profitability.

We own or license from third parties certain intellectual property rights necessary to develop our product candidates. The growth of our business will likely depend in part on our ability to acquire or in-license additional proprietary rights, including to advance our research or allow commercialization of our product candidates. In that event, we may be required to expend considerable time and resources to develop or license replacement technology. For example, our programs may involve additional technologies or product candidates that may require the use of additional proprietary rights held by third parties. Furthermore, other pharmaceutical companies and academic institutions may also have filed or are planning to file patent applications potentially relevant to our business. Our product candidates may also require specific formulations or other technology to work effectively and efficiently. These formulations or technology may be covered by intellectual property rights held by others. From time to time, in order to avoid infringing these third-party patents, we may be required to license technology from additional third parties to further develop or commercialize our product candidates. We may be unable to acquire or in-license any relevant third-party intellectual property rights, including any such intellectual property rights required to manufacture, use or sell our product candidates, that we identify as necessary or important to our business operations. We may fail to obtain any of these licenses at a reasonable cost or on reasonable terms, if at all, and as a result we may be unable to develop or commercialize the affected product candidates, and we may have to abandon development of the relevant research programs or product candidates, which would harm our business. We may need to cease use of the compositions or methods covered by such third-party intellectual property rights, and may need to seek to develop alternative approaches that do not infringe on such intellectual property rights which may entail additional costs and development delays, even if we were able to develop such alternatives, which may not be feasible. Even if we are able to obtain a license under such intellectual property rights, any such license may be non-exclusive, which may allow our competitors’ access to the same technologies licensed to us.

The licensing and acquisition of third-party intellectual property rights is a competitive practice, and companies that may be more established, or have greater resources than we do, may also be pursuing strategies to license or acquire third-party intellectual property rights that we may consider necessary or attractive in order to commercialize our product candidates. More established companies may have a competitive advantage over us due to their larger size and cash resources or greater clinical development and commercialization capabilities. There can be no assurance that we will be able to successfully complete such negotiations and ultimately acquire the rights to the intellectual property surrounding the additional product candidates that we may seek to acquire.

Licensing of intellectual property is of critical importance to our business and involves complex legal, business and scientific issues and is complicated by the rapid pace of scientific discovery in our industry. Disputes may also arise between us and our licensors regarding intellectual property subject to a license agreement, including those relating to:

- the scope of rights granted under the license agreement and other interpretation-related issues;
- whether and the extent to which our technology and processes infringe on intellectual property of the licensor that is not subject to the license agreement;
- our right to sublicense patent and other rights to third parties under collaborative development relationships;
- whether we are complying with our diligence obligations with respect to the use of the licensed technology in relation to our development and commercialization of our product candidates, and what activities satisfy those diligence obligations;
- the priority of invention of patented technology;
- the amount and timing of payments owed under license agreements; and
- the allocation of ownership of inventions and know-how resulting from the joint creation or use of intellectual property by our licensors and by us and our partners.

If disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements on acceptable terms, we may be unable to successfully develop and commercialize the affected product candidates. We are generally also subject to all of the same risks with respect to protection of intellectual property that we license as we are for intellectual property that we own, which are described below. If we or our licensors fail to adequately protect this intellectual property, our ability to commercialize our products could suffer.

Furthermore, our existing license agreements impose, and we expect that future license agreements will impose, various diligence, milestone payment, royalty and other obligations on us and if we fail to comply with our obligations under these agreements, including due to the impact of the COVID-19 pandemic on our business operations or our use of the intellectual property licensed to us in an unauthorized manner, or we are subject to a bankruptcy, we may be required to pay damages and the licensor may have the right to terminate the license.

We depend, in part, on our licensors to file, prosecute, maintain, defend, and enforce patents and patent applications that are material to our business.

Patents relating to our product candidates may be controlled by our licensor. Licensors may have rights to file, prosecute, maintain, and defend the patents we have licensed from such licensor. Our ability to settle legal claims may require consent of licensors. If our licensor or any future licensees having rights to file, prosecute, maintain, and defend our patent rights fail to conduct these activities for patents or patent applications covering any of our product candidates, including due to the impact of the COVID-19 pandemic on our licensor's business operations, our ability to develop and commercialize those product candidates may be adversely affected and we may not be able to prevent competitors from making, using, or selling competing products. We cannot be certain

that such activities by our licensor has been or will be conducted in compliance with applicable laws and regulations or will result in valid and enforceable patents or other intellectual property rights. If our licensor has the right to control enforcement of our licensed patents or defense of any claims asserting the invalidity of these patents and, even if we are permitted to pursue such enforcement or defense, we cannot ensure the cooperation of our licensor. We cannot be certain that our licensor will allocate sufficient resources or prioritize its or our enforcement of such patents or defense of such claims to protect our interests in the licensed patents. Even if we are not a party to these legal actions, an adverse outcome could harm our business because it might prevent us from continuing to license intellectual property that we may need to operate our business. In addition, even when we have the right to control patent prosecution of licensed patents and patent applications, enforcement of licensed patents, or defense of claims asserting the invalidity of those patents, we may still be adversely affected or prejudiced by actions or inactions of our licensor and its counsel that took place prior to or after our assuming control. In the event we breach any of our obligations related to such prosecution, we may incur significant liability to our licensing partners.

Arena has the first right to control the prosecution and bring enforcement actions for infringement by third parties with respect to the licensed patents for the programs licensed to us under the Arena License Agreement, including LP352, LP143 and LP659, for at least a period of time, with input from us. Unsuccessful actions to prosecute the patent applications or to prosecute such patent applications in our best interest could adversely affect our intellectual property rights.

We may enter into collaboration agreements and strategic alliances, and we may not realize the anticipated benefits of such collaborations or alliances. We may wish to form collaborations in the future with respect to our product candidates, but may not be able to do so or to realize the potential benefits of such transactions, which may cause us to alter or delay our development and commercialization plans.

Research and development collaborations are subject to numerous risks, which may include the following:

- collaborators have significant discretion in determining the efforts and resources that they will apply to a collaboration, and may not commit sufficient efforts and resources, or may misapply those efforts and resources;
- collaborators may not pursue development and commercialization of collaboration product candidates or may elect not to continue or renew development or commercialization programs based on clinical trial results or changes in their strategic focus;
- collaborators may delay, provide insufficient resources to, or modify or stop clinical trials for collaboration product candidates;
- collaborators could develop or acquire products outside of the collaboration that compete directly or indirectly with our products or product candidates;
- collaborators may not properly maintain or defend our intellectual property rights or may use our intellectual property or proprietary information in a way that gives rise to actual or threatened litigation that could jeopardize or invalidate our intellectual property or proprietary information or expose us to potential liability;
- disputes may arise between us and a collaborator that cause the delay or termination of the research, development or commercialization of our product candidates, or that result in costly litigation or arbitration that diverts management attention and resources;
- collaborations may be terminated and, if terminated, may result in a need for additional capital and personnel to pursue further development or commercialization of the applicable product candidates; and
- collaborators may own or co-own intellectual property covering our products that results from our collaborating with them, and in such cases, we may not have the exclusive right to commercialize such intellectual property.

The development and potential commercialization of our product candidates will require substantial additional capital to fund expenses. We may form or seek further strategic alliances, create joint ventures or collaborations, or enter into additional licensing arrangements with third parties that we believe will complement or augment our development and commercialization efforts with respect to our product candidates and any future product candidates that we may develop, including in territories outside the United States or for certain indications. These transactions can entail numerous operational and financial risks, including exposure to unknown liabilities, disruption of our business and diversion of our management's time and attention in order to manage a collaboration or develop acquired products, product candidates or technologies, incurrence of substantial debt or dilutive issuances of equity securities to pay transaction consideration or costs, higher than expected collaboration, acquisition or integration costs, write-downs of assets or goodwill or impairment charges, increased amortization expenses, difficulty and cost in facilitating the collaboration or combining the operations and personnel of any acquired business, impairment of relationships with key suppliers, manufacturers or customers of any acquired business due to changes in management and ownership and the inability to retain key employees of any acquired business. As a result, if we enter into acquisition or in-license agreements or strategic partnerships, we may not be able to realize the benefit of such transactions if we are unable to successfully integrate them with our existing operations and company culture, or if there are materially adverse impacts on our or the counterparty's operations resulting from COVID-19, which could delay our timelines or otherwise adversely affect our business. We also cannot be certain that, following a strategic transaction or license, we will achieve the revenue or specific net income that justifies such transaction or such other benefits that led us to enter into the arrangement.

In addition, we face significant competition in seeking appropriate strategic partners and the negotiation process is time-consuming and complex. We may not be successful in our efforts to establish a strategic partnership or other alternative arrangements for our product candidates because they may be deemed to be at too early of a stage of development for collaborative effort and third parties may not view our product candidates as having the requisite potential to demonstrate safety and efficacy. If and when we collaborate 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. Our ability to reach a definitive agreement for a collaboration will depend, among other things, upon our assessment of the collaborator's resources and expertise, the terms and conditions of the proposed collaboration and the proposed collaborator's evaluation of our technologies, product candidates and market opportunities. The collaborator may also consider alternative product candidates or technologies for similar indications that may be available to collaborate on and whether such a collaboration could be more attractive than the one with us for our product candidate. We may also be restricted under any license agreements from entering into agreements on certain terms or at all with potential collaborators.

As a result of these risks, we may not be able to realize the benefit of our existing collaborations or any future collaborations or licensing agreements we may enter into. In addition, there have been a significant number of recent business combinations among large pharmaceutical and biomedical companies that have resulted in a reduced number of potential future collaborators and changes to the strategies of the combined company. As a result, we may not be able to negotiate collaborations on a timely basis, on acceptable terms, or at all. If we are unable to do so, we may have to curtail the development of such product candidate, reduce or delay one or more of our other development programs, delay the potential commercialization or reduce the scope of any planned sales or marketing activities for such product candidate, or increase our expenditures and undertake development, manufacturing or commercialization activities at our own expense. If we elect to increase our expenditures to fund development, manufacturing or commercialization activities on our own, we may need to obtain additional capital, which may not be available to us on acceptable terms or at all. If we do not have sufficient funds, we may not be able to further develop our product candidates or bring them to market and generate product revenue.

Additionally, we may sometimes collaborate with academic institutions to accelerate our preclinical research or development under written agreements with these institutions. Typically, these institutions provide us

with an option to negotiate a license to any of the institution's rights in technology resulting from the collaboration. Regardless of such option, we may be unable to negotiate a license within the specified timeframe or under terms that are acceptable to us. If we are unable to do so, the institution may offer the intellectual property rights to other parties, potentially blocking our ability to pursue our program. If we are unable to successfully obtain rights to required third-party intellectual property or to maintain the existing intellectual property rights we have, we may have to abandon development of such program and our business and financial condition could suffer.

Our products require specific constituents to work effectively and efficiently, and rights to those constituents are and in the future may be held by others. We may be unable to in-license any rights to constituents, methods of use, processes or other third-party intellectual property rights from third parties that we identify. We may fail to obtain any of these licenses at a reasonable cost or on reasonable terms, which would harm our business. Even if we are able to obtain a license, it may be non-exclusive, thereby giving our competitors access to the same technologies licensed to us. In that event, we may be required to expend significant time and resources to develop or license replacement technology. Any delays in entering into new collaborations or strategic partnership agreements related to our product candidates could delay the development and commercialization of our product candidates in certain geographies, which could harm our business prospects, financial condition, and results of operations.

We may be dependent on intellectual property licensed or sublicensed to us from, or for which development was funded or otherwise assisted by, government agencies, for development of our technology and product candidates. Failure to meet our own obligations to our licensors or upstream licensors, including such government agencies, may result in the loss of our rights to such intellectual property, which could harm our business.

Government agencies may provide funding, facilities, personnel or other assistance in connection with the development of the intellectual property rights owned by or licensed to us. Such government agencies may have retained rights in such intellectual property, including the right to grant or require us to grant mandatory licenses or sublicenses to such intellectual property to third parties under certain specified circumstances, including if it is necessary to meet health and safety needs that we are not reasonably satisfying or if it is necessary to meet requirements for public use specified by federal regulations, or to manufacture products in the United States. Any exercise of such rights, including with respect to any such required sublicense of these licenses could result in the loss of significant rights and could harm our ability to commercialize licensed products.

If we are unable to obtain and maintain patent protection for our current or any future product candidates, or if the scope of the patent protection obtained is not sufficiently broad, we may not be able to compete effectively in our markets.

We anticipate that we will file additional patent applications both in the United States and in other countries, as appropriate. However, we cannot predict:

- if and when any patents will issue;
- the degree and scope of protection any issued patents will afford us against competitors, including whether third parties will find ways to invalidate or otherwise circumvent our patents;
- whether others will apply for or obtain patents claiming aspects similar to those covered by our patents and patent applications;
- whether we will need to initiate litigation or administrative proceedings to defend our patent rights, which may be costly whether we win or lose; or
- whether the patent applications that we own, or in-license will result in issued patents with claims that cover our product candidates or uses thereof in the United States or in foreign countries.

We rely upon a combination of patents, trade secret protection and confidentiality agreements to protect the intellectual property related to our development programs and product candidates. Our success depends in large part on our ability to obtain and maintain patent protection in the United States and other countries with respect to our current and any future product candidates. We seek to protect our proprietary position by filing patent applications in the United States and abroad related to our current and future development programs and product candidates. The patent prosecution process is expensive and time-consuming, and we may not be able to file and prosecute all necessary or desirable patent applications at a reasonable cost or in a timely manner, including as a result of the COVID-19 pandemic impacting our or our licensors' operations.

It is possible that we will fail to identify patentable aspects of our research and development output before it is too late to obtain patent protection. The patent applications that we own or in-license may fail to result in issued patents with claims that cover our current or any future product candidates in the United States or in foreign countries. There is no assurance that all of the potentially relevant prior art relating to our patents and patent applications has been found, which can invalidate a patent or prevent a patent from issuing from a pending patent application. Even if patents do successfully issue and even if such patents cover our current or any future product candidates, third parties may challenge their scope, validity, or enforceability, which may result in such patents being narrowed, invalidated, or held unenforceable. Any successful opposition to these patents or any other patents owned by or licensed to us could deprive us of rights necessary for the successful commercialization of any product candidates or companion diagnostic that we may develop. Further, if we encounter delays in regulatory approvals, the period of time during which we could market a product candidate and companion diagnostic under patent protection could be reduced.

If the patent applications we hold or have in-licensed with respect to our development programs and product candidates fail to issue, if their breadth or strength of protection is threatened, or if they fail to provide meaningful exclusivity for our current or any future product candidates, it could dissuade companies from collaborating with us to develop product candidates, and threaten our ability to commercialize, future drugs. Any such outcome could have a negative effect on our business.

Composition of matter patents for pharmaceutical products often provide a strong form of intellectual property protection for those types of products, as such patents provide protection without regard to any method of use. We cannot be certain, however, that the claims in our pending patent applications covering the composition of matter of our product candidates will be considered patentable by the U.S. Patent and Trademark Office (USPTO), or by patent offices in foreign countries, or that the claims in any of our issued patents will be considered valid and enforceable by courts in the United States or foreign countries. Method of use patents protect the use of a product for the specified method. This type of patent does not prevent a competitor from making and marketing a product that is identical to our product for an indication that is outside the scope of the patented method. Moreover, even if competitors do not actively promote their product for our targeted indications, physicians may prescribe these products "off-label" for those uses that are covered by our method of use patents. Although off-label prescriptions may infringe or contribute to the infringement of method of use patents, the practice is common and such infringement is difficult to prevent or enforce against.

The patent position of biotechnology and pharmaceutical companies generally is highly uncertain, involves complex legal and factual questions and has in recent years been the subject of much litigation. In addition, the laws of foreign countries may not protect our rights to the same extent as the laws of the United States. Patent applications in the United States and other jurisdictions are typically not published until 18 months after filing, or in some cases not at all. Therefore, we cannot know with certainty whether we were the first to file for patent protection. As a result, the issuance, scope, validity, enforceability and commercial value of our patent rights are highly uncertain. Our pending and future patent applications may not result in patents being issued which protect our technology or drugs, in whole or in part, or which effectively prevent others from commercializing competitive technologies and drugs.

Changes in either the patent laws or interpretation of the patent laws in the United States and other countries may diminish the value of our patents or narrow the scope of our patent protection. These changes could also

increase the uncertainties and costs surrounding the prosecution of patent applications and the enforcement or defense of issued patents. On September 16, 2011, the Leahy-Smith America Invents Act (Leahy-Smith Act) was signed into law. When implemented, the Leahy-Smith Act included several significant changes to U.S. patent law that impacted how patent rights could be prosecuted, enforced and defended. In particular, the Leahy-Smith Act also included provisions that switched the United States from a “first-to-invent” system to a “first-to-file” system, allowed third party submission of prior art to the USPTO during patent prosecution and set forth additional procedures to attack the validity of a patent by the USPTO-administered post-grant proceedings. Under a first-to-file system, assuming the other requirements for patentability are met, the first inventor to file a patent application generally will be entitled to the patent on an invention regardless of whether another inventor had made the invention earlier. The USPTO developed new regulations and procedures governing the administration of the Leahy-Smith Act, and many of the substantive changes to patent law associated with the Leahy-Smith Act, and in particular, the first to file provisions, became effective on March 16, 2013. It remains unclear 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 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 have a negative effect on our business.

Moreover, we may be subject to a third-party pre-issuance submission of prior art to the USPTO or become involved in opposition, derivation, reexamination, inter partes review, post-grant review or interference proceedings challenging our patent rights or the patent rights of others. An adverse determination in any such submission, proceeding or litigation could reduce the scope of, or invalidate, our patent rights, allow third parties to commercialize our technology or drugs and compete directly with us, without payment to us, or result in our inability to manufacture or commercialize drugs without infringing third-party patent rights. In addition, if the breadth or strength of protection provided by our patents and patent applications is threatened, it could dissuade companies from collaborating with us to license, develop or commercialize current or future product candidates.

The issuance of a patent is not conclusive as to its inventorship, scope, validity or enforceability, and our owned and licensed patents may be challenged in the courts or patent offices in the United States and abroad. An adverse determination in any such challenges may result in loss of exclusivity or in patent claims being narrowed, invalidated or held unenforceable, in whole or in part, which could limit our ability to stop others from using or commercializing similar or identical technology and drugs, or limit the duration of the patent protection of our technology and drugs. Moreover, patents have a limited lifespan. In the United States, if all maintenance fees are paid timely, the natural expiration of a patent is generally 20 years from the earliest filing date of a non-provisional patent application. Various extensions may be available; however, the life of a patent, and the protection it affords, is limited. For instance, a patent term extension based on regulatory delay may be available in the United States. However, only a single patent can be extended for each marketing approval, and any patent can be extended only once, for a single product. Moreover, the scope of protection during the period of the patent term extension does not necessarily extend to all claims, but instead only to claims that read on the product as approved. Laws governing analogous patent term extensions in foreign jurisdictions vary widely, as do laws governing the ability to obtain multiple patents from a single patent family. Additionally, we may not receive an extension if we fail to exercise due diligence during the testing phase or regulatory review process, apply within applicable deadlines, fail to apply prior to expiration of relevant patents or otherwise fail to satisfy applicable requirements. If we are unable to obtain patent term extension or restoration, or the term of any such extension is less than we request, the period during which we will have the right to exclusively market our product will be shortened and our competitors may obtain approval of competing products following our patent expiration and may take advantage of our investment in development and clinical trials by referencing our clinical and preclinical data to launch their product earlier than might otherwise be the case, and our revenue could be reduced, possibly materially. In addition, although upon issuance in the United States a patent’s life can be increased based on certain delays caused by the USPTO, this increase can be reduced or eliminated based on certain delays caused by the patent applicant during patent prosecution. Without patent protection for our current or future product candidates, including once the patent life has expired even if patents covering our product candidates are obtained, we may be open to competition from generic versions of such drugs. Given the amount

of time required for the development, testing and regulatory review of new product candidates, patents protecting such candidates might expire before or shortly after such candidates are commercialized. Even if patents covering our product candidates are obtained, once the patent life has expired for a product, we may be open to competition from generic medications. As a result, our owned and licensed patent portfolio may not provide us with sufficient rights to exclude others from commercializing drugs similar or identical to ours.

Even if we have or obtain patents covering our products or methods, we may still be barred from making, using and selling such products or methods because of the patent rights of others. Others may have filed, and in the future may file, patent applications covering compositions, products or methods that are similar or identical to ours, which could materially affect our ability to successfully develop our technology or to successfully commercialize any approved products alone or with collaborators.

Patent applications in the United States and elsewhere are generally published approximately 18 months after the earliest filing for which priority is claimed, with such earliest filing date being commonly referred to as the priority date. Therefore, patent applications covering our methods and products could have been filed by others without our knowledge. Additionally, pending claims in patent applications which have been published can, subject to certain limitations, be later amended in a manner that could cover our platform technologies or related products. These patent applications may have priority over patent applications filed by us.

Obtaining and maintaining our patent protection depends on compliance with various procedural, document submission, fee payment and other requirements imposed by government patent agencies, and our patent protection could be reduced or eliminated for non-compliance with these requirements.

Periodic maintenance fees, renewal fees, annuity fees and various other government fees on patents and/or applications will be due to be paid to the USPTO and various government patent agencies outside of the United States over the lifetime of our owned and licensed patents and/or applications and any patent rights we may own or license in the future. We rely on our outside counsel, patent annuity service providers, or our licensing partners to pay these fees due to non-U.S. patent agencies. The USPTO and various non-U.S. government patent agencies require compliance with several procedural, documentary, and other similar provisions during the patent application process. We employ reputable law firms and other professionals to help us comply and we are also dependent on our licensors to take the necessary action to comply with these requirements with respect to our licensed intellectual property. In many cases, an inadvertent lapse can be cured by payment of a late fee or by other means in accordance with the applicable rules. There are situations, however, in which non-compliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. In such an event, potential competitors might be able to enter the market and this circumstance could harm our business.

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

Given the amount of time required for the development, testing and regulatory review of new product candidates such as LP352, patents protecting such candidates might expire before or shortly after such candidates are commercialized. We expect to seek extensions of patent terms in the United States and, if available, in other countries where we are prosecuting patents. In the United States, the Drug Price Competition and Patent Term Restoration Act of 1984 permits a patent term extension of up to five years beyond the normal expiration of the patent, which is limited to the approved indication (or any additional indications approved during the period of extension). However, the applicable authorities, including the FDA and the USPTO in the United States, and any equivalent regulatory authority in other countries, may not agree with our assessment of whether such extensions are available, and may refuse to grant extensions to our patents, or may grant more limited extensions than we request. If this occurs, our competitors may be able to take advantage of our investment in development and clinical trials by referencing our clinical and preclinical data and launch their drug earlier than might otherwise be the case.

Intellectual property rights do not necessarily address all potential threats to our business.

The degree of future protection afforded by our intellectual property rights is uncertain because intellectual property rights have limitations, and may not adequately protect our business. The following examples are illustrative:

- others may be able to make compounds or formulations that are similar to our product candidates but that are not covered by the claims of any patents, should they issue, that we own or control;
- we or any strategic partners might not have been the first to make the inventions covered by the issued patents or pending patent applications that we own or control;
- we might not have been the first to file patent applications covering certain of the inventions we own or control;
- others may independently develop similar or alternative technologies or duplicate any of our technologies without infringing our intellectual property rights;
- pending patent applications that we own or control may not lead to issued patents;
- issued patents that we own or control may be held invalid or unenforceable as a result of legal challenges;
- our competitors might conduct research and development activities in the United States and other countries that provide a safe harbor from patent infringement claims for certain research and development activities, as well as in countries where we do not have patent rights and then use the information learned from such activities to develop competitive drugs for sale in our major commercial markets;
- we may not develop additional proprietary technologies that are patentable; and
- the patents of others may have an adverse effect on our business.

Third parties may initiate legal proceedings alleging that we are infringing their intellectual property rights, the outcome of which would be uncertain and could have a negative impact on the success of our business.

Our commercial success depends, in part, upon our ability and the ability of our current or future collaborators to develop, manufacture, market and sell our current and any future product candidates and use our proprietary technologies without infringing the proprietary rights and intellectual property of third parties. The biotechnology and pharmaceutical industries are characterized by extensive and complex litigation regarding patents and other intellectual property rights. Our product candidates and other proprietary technologies we may develop may infringe existing or future patents owned by third parties. We may in the future become party to, or be threatened with, adversarial proceedings or litigation regarding intellectual property rights with respect to our current and any future product candidates and technology, including interference proceedings, post grant review and inter partes review before the USPTO. Third parties may assert infringement claims against us based on existing patents or patents that may be granted in the future, regardless of their merit. There is a risk that third parties may choose to engage in litigation with us to enforce or to otherwise assert their patent rights against us. Even if we believe such claims are without merit, a court of competent jurisdiction could hold that these third-party patents are valid, enforceable and infringed, which could have a negative impact on our ability to commercialize our current and any future product candidates. In order to successfully challenge the validity of any such U.S. patent in federal court, we would need to overcome a presumption of validity. As this burden is a high one requiring us to present clear and convincing evidence as to the invalidity of any such U.S. patent claim, there is no assurance that a court of competent jurisdiction would invalidate the claims of any such U.S. patent. If we are found to infringe a third party's valid and enforceable intellectual property rights, we could be required to obtain a license from such third party to continue developing, manufacturing and marketing our product candidate(s) and technology. However, we may not be able to obtain any required license on commercially reasonable terms or at all. Even if we were able to obtain a license, it could be non-exclusive, thereby giving our competitors and other third parties access to the same technologies licensed to us, and it could require us to make substantial licensing and royalty payments. We could be forced, including by court order, to cease developing,

manufacturing and commercializing the infringing technology or product candidate. In addition, we could be found liable for monetary damages, including treble damages and attorneys' fees, if we are found to have willfully infringed a patent or other intellectual property right. A finding of infringement could prevent us from manufacturing and commercializing our current or any future product candidates or force us to cease some or all of our business operations, which could materially harm our business. Claims that we have misappropriated the confidential information or trade secrets of third parties could have a similar negative impact on our business, financial condition, results of operations and prospects.

Third parties asserting their patent or other intellectual property rights against us may seek and obtain injunctive or other equitable relief, which could effectively block our ability to further develop and commercialize our product candidates or force us to cease some of our business operations. Defense of these claims, regardless of their merit, would involve substantial litigation expense and would be a substantial diversion of management and other employee resources from our business, cause development delays, and may impact our reputation. 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, which may be impossible on a cost-effective basis or require substantial time and monetary expenditure. In that event, we would be unable to further develop and commercialize our product candidates, which could harm our business significantly. Claims that we have misappropriated the confidential information or trade secrets of third parties could have a similar negative impact on our business.

We are aware of third-party patents and/or patent applications that could adversely affect the potential commercialization of our compounds. For example, we are aware of third-party patents, as well as a third-party patent application, with broad claims to administering an S1P receptor modulator by starting with a lower dose and then increasing to a higher, standard daily dose. Further, we are aware of third-party patent applications with broad claims to administering a 5-HT receptor agonist for epileptic disorders. While we do not believe that any such claims that would cover the potential commercialization of LP659 or LP352 would be valid and enforceable, we may be incorrect in this belief.

We may be subject to claims asserting that our employees, consultants or advisors have wrongfully used or disclosed alleged trade secrets of their current or former employers or claims asserting ownership of what we regard as our own intellectual property.

Certain of our employees, consultants or advisors are currently, or were previously, employed at universities or other biotechnology or pharmaceutical companies, including our competitors or potential competitors. Although we try to ensure that our employees, consultants and advisors do not use the proprietary information or know-how of others in their work for us, we may be subject to claims that these individuals or we have used or disclosed intellectual property, including trade secrets or other proprietary information, of any such individual's current or former employer. 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. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management.

In addition, while it is our policy to require our employees and contractors who may be involved in the conception or development of intellectual property to execute agreements assigning such intellectual property to us, we may be unsuccessful in executing such an agreement with each party who, in fact, conceives or develops intellectual property that we regard as our own. The assignment of intellectual property rights may not be self-executing or the assignment agreements may be breached, and we may be forced to bring claims against third parties, or defend claims that they may bring against us, to determine the ownership of what we regard as our intellectual property.

We may be involved in lawsuits to protect or enforce our patents, the patents of our licensors or our other intellectual property rights, which could be expensive, time consuming and unsuccessful.

Competitors may infringe or otherwise violate our patents, the patents of our licensors or our other intellectual property rights. To counter infringement or unauthorized use, we may be required to file legal claims, which can be expensive, time-consuming, and unpredictable. In addition, in an infringement proceeding, a court may decide that a patent of ours or our licensors is not valid or is unenforceable, or may refuse to stop the other party from using the technology at issue on the grounds that our patents do not cover the technology in question. An adverse result in any litigation or defense proceedings could put one or more of our patents at risk of being invalidated or interpreted narrowly and could put our related patent applications at risk of not issuing. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could have a material adverse effect on our ability to compete in the marketplace. The initiation of a claim against a third party may also cause the third party to bring counter claims against us such as claims asserting that our patents are invalid or unenforceable. In patent litigation in the United States, defendant counterclaims alleging invalidity 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, non-enablement or lack of statutory subject matter. Grounds for an unenforceability assertion could be an allegation that someone connected with prosecution of the patent withheld relevant material information from the USPTO, or made a materially misleading statement, during prosecution. Third parties may also raise similar validity claims before the USPTO in post-grant proceedings such as ex parte reexaminations, inter partes review, or post-grant review, or oppositions or similar proceedings outside the United States, in parallel with litigation or even outside the context of litigation. The outcome following legal assertions of invalidity and unenforceability is unpredictable. We cannot be certain that there is no invalidating prior art, of which we and the patent examiner were unaware during prosecution. For the patents and patent applications that we have licensed, we may have limited or no right to participate in the defense of any licensed patents against challenge by a third party. If a defendant were to prevail on a legal assertion of invalidity or unenforceability, we would lose at least part, and perhaps all, of any future patent protection on our current or future product candidates. Such a loss of patent protection could harm our business.

Interference or derivation proceedings provoked by third parties or brought by the USPTO may be necessary to determine the priority of inventions with respect to, or the correct inventorship of, our patents or patent applications or those of our licensors. An unfavorable outcome could result in a loss of our current patent rights and could require us to cease using the related technology or to attempt to license rights to it from the prevailing party. Our business could be harmed if the prevailing party does not offer us a license on commercially reasonable terms. Litigation, interference, derivation or other proceedings may result in a decision adverse to our interests and, even if we are successful, may result in substantial costs and distract our management and other employees.

There may be third-party patents of which we are currently unaware with claims to compositions, formulations, methods of manufacture, or methods of use or treatment that cover our product candidates. It is also possible that patents owned by third parties of which we are aware, but which we do not believe are relevant to our product candidates and other proprietary technologies we may develop, could be found to be infringed by our product candidate. Because patent applications can take many years to issue, there may be currently pending patent applications that may later result in issued patents that our product candidates may infringe. In addition, our competitors in both the United States and abroad, many of which have made substantial investments in patent portfolios and competing technologies, may obtain patents in the future that may prevent, limit or otherwise interfere with our ability to make, use and sell our product candidates, and may claim that use of our technologies or the manufacture, use, or sale of our product candidates infringes upon these patents. We may also receive, and expect to receive, communications from various industry participants alleging our infringement of their patents, trade secrets or other intellectual property rights and/or offering licenses to such intellectual property.

We may not be able to prevent, alone or with our licensors, misappropriation of our intellectual property rights, particularly in countries where the laws may not protect those rights as fully as in the United States. Our business could be harmed if in litigation the prevailing party does not offer us a license on commercially reasonable terms. Any litigation or other proceedings to enforce our intellectual property rights may fail, and even if successful, may result in substantial costs and distract our management and other employees.

Because of the expense and uncertainty of litigation, we may conclude that even if a third-party is infringing our issued patents, or any patents that may be issued as a result of our pending or future patent applications or other intellectual property rights, the risk-adjusted cost of bringing and enforcing such a claim or action, which typically last for years before they are concluded, may be too high or not in the best interest of our company or our stockholders, or it may be otherwise impractical or undesirable to enforce our intellectual property against some third parties. Our competitors or other third parties may be able to sustain the costs of complex patent litigation or proceedings more effectively than we can because of their greater financial resources and more mature and developed intellectual property portfolios. In such cases, we may decide that the monetary cost of such litigation and the diversion of the attention of our management and scientific personnel could outweigh any benefit we receive as a result of the proceedings and that the more prudent course of action is to simply monitor the situation or initiate or seek some other non-litigious action or solution. In addition, the uncertainties associated with litigation could compromise our ability to raise the funds necessary to continue our clinical trials, continue our internal research programs, in-license needed technology or other product candidates, or enter into development partnerships that would help us bring our product candidates to market.

Even if we establish infringement, the court may decide not to grant an injunction against further infringing activity and instead award only monetary damages, which may or may not be an adequate remedy. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. There could also be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could have an adverse effect on the price of our common stock.

Issued patents covering our product candidates could be found invalid or unenforceable if challenged in court or before the USPTO or comparable foreign authority.

If we or one of our licensing partners initiate legal proceedings against a third party to enforce a patent covering one of our product candidates, the defendant could counterclaim we infringe their patents or that the patent covering our product candidate is invalid or unenforceable, or both. In any patent infringement proceeding, there is a risk that a court will decide that a patent of ours is invalid or unenforceable, in whole or in part, and that we do not have the right to stop the other party from using the invention at issue. There is also a risk that, even if the validity of such patents is upheld, the court will construe the patent's claims narrowly or decide that we do not have the right to stop the other party from using the invention at issue on the grounds that our patent claims do not cover the invention, or decide that the other party's use of our patented technology falls under the safe harbor to patent infringement under 35 U.S.C. §271(e)(1). With respect to the validity of our patents, for example, we cannot be certain that there is no invalidating prior art of which we, our patent counsel, and the patent examiner were unaware during prosecution. If a defendant were to prevail on a legal assertion of invalidity and/or unenforceability, we would lose at least part, and perhaps all, of the patent protection on our product candidates and such an outcome may limit our ability to assert our patents against those parties or other competitors and may curtail or preclude our ability to exclude third parties from making and selling similar or competitive products. Such a loss of patent protection could have a material adverse impact on our business. Similarly, if we assert trademark infringement claims, a court may determine that the marks we have asserted are invalid or unenforceable, or that the party against whom we have asserted trademark infringement has superior rights to the marks in question. In this case, we could ultimately be forced to cease use of such trademarks.

Changes in U.S. patent law or the patent law of other countries or jurisdictions could diminish the value of patents in general, thereby impairing our ability to protect our current and any future product candidates.

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. In addition to increasing uncertainty with regard to our ability to obtain patents in the future, this combination of events has created uncertainty with respect to the value of patents, once obtained. Depending on actions by the U.S. Congress, the federal courts, and the USPTO, the laws and regulations governing patents could change in unpredictable ways that would weaken our ability to obtain new patents or to enforce patents that we have licensed or that we might obtain in the future. Similarly, changes in patent law and regulations in other countries or jurisdictions or changes in the governmental bodies that enforce them or changes in how the relevant governmental authority enforces patent laws or regulations may weaken our ability to obtain new patents or to enforce patents that we have licensed or that we may obtain in the future.

We may not be able to protect our intellectual property rights throughout the world, which could negatively impact our business.

Filing, prosecuting and defending patents covering our current and any future product candidates throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the United States can have a different scope and strength than do those in the United States. Competitors may use our technologies in jurisdictions where we have not obtained patent protection to develop their own drugs and, further, may export otherwise infringing drugs to territories where we may obtain patent protection, but where patent enforcement is not as strong as that in the United States. These drugs may compete with our drugs in jurisdictions where we do not have any issued or licensed patents and any future patent claims or other intellectual property rights may not be effective or sufficient to prevent them from so competing.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents, trade secrets and other intellectual property, particularly those relating to biopharmaceutical products, which could make it difficult in those jurisdictions for us to stop the infringement or misappropriation of our patents or other intellectual property rights, or the marketing of competing products in violation of our proprietary rights. Proceedings to enforce our patent and other intellectual property rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business. Furthermore, such proceedings could put our patents at risk of being invalidated, held unenforceable, or interpreted narrowly, could put our patent applications at risk of not issuing, and could provoke third parties to assert claims of infringement or misappropriation against us. We may not prevail in any lawsuits that we initiate and the damages or other remedies awarded, if any, may not be commercially meaningful. Similarly, if our trade secrets are disclosed in a foreign jurisdiction, competitors worldwide could have access to our proprietary information and we may be without satisfactory recourse. Such disclosure could have a material adverse effect on our business. Moreover, our ability to protect and enforce our intellectual property rights may be adversely affected by unforeseen changes in foreign intellectual property laws. In addition, certain developing countries, including China and India, have compulsory licensing laws under which a patent owner may be compelled to grant licenses to third parties. In those countries, we and our licensors may have limited remedies if patents are infringed or if we or our licensors are compelled to grant a license to a third party, which could materially diminish the value of those patents. In addition, many countries limit the enforceability of patents against government agencies or government contractors. This could limit our potential revenue opportunities. Accordingly, our efforts to enforce our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license.

Reliance on third parties requires us to share our trade secrets, which increases the possibility that a competitor will discover them or that our trade secrets will be misappropriated or disclosed.

If we rely on third parties to manufacture or commercialize our current or any future product candidates, or if we collaborate with additional third parties for the development of our current or any future product candidates, we must, at times, share trade secrets with them. We may also conduct joint research and development programs that may require us to share trade secrets under the terms of our research and development partnerships or similar agreements. We seek to protect our proprietary technology in part by entering into confidentiality agreements and, if applicable, material transfer agreements, services agreements, consulting agreements or other similar agreements with our advisors, employees, third-party contractors and consultants prior to beginning research or disclosing proprietary information. These agreements typically limit the rights of the third parties to use or disclose our confidential information, including our trade secrets. Despite the contractual provisions employed when working with third parties, the need to share trade secrets and other confidential information increases the risk that such trade secrets become known by our competitors, are inadvertently incorporated into the technology of others, or are disclosed or used in violation of these agreements. Given that our proprietary position is based, in part, on our know-how and trade secrets, a competitor's discovery of our trade secrets or other unauthorized use or disclosure could have an adverse effect on our business and results of operations.

In addition, these agreements typically restrict the ability of our advisors, employees, third-party contractors and consultants to publish data potentially relating to our trade secrets. Despite our efforts to protect our trade secrets, our competitors may discover our trade secrets, either through breach of our agreements with third parties, independent development or publication of information by any third-party collaborators. A competitor's discovery of our trade secrets could harm our business.

Confidentiality agreements with employees and third parties may not prevent unauthorized disclosure of trade secrets and other proprietary information.

In addition to the protection afforded by patents, we seek to rely on trade secret protection and confidentiality agreements to protect proprietary know-how that is not patentable or that we elect not to patent, processes for which patents are difficult to enforce, and any other elements of our product candidates, technology and product discovery and development processes that involve proprietary know-how, information, or technology that is not covered by patents. Any disclosure, either intentional or unintentional, by our employees, the employees of third parties with whom we share our facilities or third-party consultants and vendors that we engage to perform research, clinical trials or manufacturing activities, or misappropriation by third parties (such as through a cybersecurity breach) of our trade secrets or proprietary information could enable competitors to duplicate or surpass our technological achievements, thus eroding our competitive position in our market. Because we expect to rely on third parties in the development and manufacture of our product candidates, we must, at times, share trade secrets with them. Our reliance on third parties requires us to share our trade secrets, which increases the possibility that a competitor will discover them or that our trade secrets will be misappropriated or disclosed.

Trade secrets and confidential information, however, may be difficult to protect. We seek to protect our trade secrets, know-how and confidential information, including our proprietary processes, in part, by entering into confidentiality agreements with our employees, consultants, outside scientific advisors, contractors, and collaborators. With our consultants, contractors, and outside scientific collaborators, these agreements typically include invention assignment obligations. We cannot guarantee that we have entered into such agreements with each party that may have or has had access to our trade secrets or proprietary technology and processes. Although we use reasonable efforts to protect our trade secrets, our employees, consultants, outside scientific advisors, contractors, and collaborators might intentionally or inadvertently disclose our trade secret information to competitors. In addition, competitors may otherwise gain access to our trade secrets or independently develop substantially equivalent information and techniques. Despite these efforts, any of these parties may breach the

agreements and disclose our proprietary information, including our trade secrets, and we may not be able to obtain adequate remedies for such breaches. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret is difficult, expensive and time-consuming, and the outcome is unpredictable. If any of our trade secrets were to be lawfully obtained or independently developed by a competitor or other third-party, we would have no right to prevent them from using that technology or information to compete with us. Furthermore, the laws of some foreign countries do not protect proprietary rights to the same extent or in the same manner as the laws of the United States. As a result, we may encounter significant problems in protecting and defending our intellectual property both in the United States and abroad. If we are unable to prevent unauthorized material disclosure of our intellectual property to third parties, or misappropriation of our intellectual property by third parties, we may not be able to establish or maintain a competitive advantage in our market, which could materially adversely affect our business, operating results, and financial condition.

We may be subject to claims that our employees, consultants, or advisors have wrongfully used or disclosed trade secrets or other confidential information of their current or former employers or claims asserting inventorship or ownership of what we regard as our own intellectual property.

Many of our employees, consultants, and advisors are currently or were previously employed at universities or other healthcare, biotechnology or pharmaceutical companies, including our competitors or potential competitors. Although we try to ensure that our employees, consultants, and advisors do not use the proprietary information or know-how of others in their work for us, we may be subject to claims that we or these individuals have used or disclosed intellectual property, including trade secrets or other proprietary information, of any such individual's current or former employer. 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. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management.

We may be subject to claims that former employees, collaborators, or other third parties have an interest in our patents or other intellectual property as an inventor or co-inventor. The failure to name the proper inventors on a patent application can result in the patents issuing thereon being unenforceable. Inventorship disputes may arise from conflicting views regarding the contributions of different individuals named as inventors, the effects of foreign laws where foreign nationals are involved in the development of the subject matter of the patent, conflicting obligations of third parties involved in developing our product candidates or as a result of questions regarding co-ownership of potential joint inventions. For example, we may have inventorship disputes arise from conflicting obligations of consultants or others who are involved in developing our product candidates. Alternatively, or additionally, we may enter into agreements to clarify the scope of our rights in such intellectual property. Litigation may be necessary to defend against these and other claims challenging inventorship. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights, such as exclusive ownership of, or right to use, valuable intellectual property. Such an outcome could have a material adverse effect on our business. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management and other employees.

In addition, while it is our policy to require our employees and contractors who may be involved in the conception or development of intellectual property to execute agreements assigning such intellectual property to us, we may be unsuccessful in executing such an agreement with each party who, in fact, conceives or develops intellectual property that we regard as our own. The assignment of intellectual property rights may not be self-executing, or the assignment agreements may be breached, and we may be forced to bring claims against third parties, or defend claims that they may bring against us, to determine the ownership of what we regard as our intellectual property. Such claims could have a material adverse effect on our business, financial condition, results of operations, and prospects.

We may not identify relevant third-party patents or may incorrectly interpret the relevance, scope or expiration of a third-party patent, which might adversely affect our ability to develop and market our products.

We cannot guarantee that any of our patent searches or analyses, including the identification of relevant patents, the scope of patent claims or the expiration of relevant patents, are complete or thorough, nor can we be certain that we have identified each and every third-party patent and pending application in the United States and abroad that is relevant to or necessary for the commercialization of our product candidates in any jurisdiction. The scope of a patent claim is determined by an interpretation of the law, the written disclosure in a patent and the patent's prosecution history. Our interpretation of the relevance or the scope of a patent or a pending application may be incorrect, which may negatively impact our ability to market our products. We may incorrectly determine that our products are not covered by a third-party patent or may incorrectly predict whether a third-party's pending application will issue with claims of relevant scope. Our determination of the expiration date of any patent in the United States or abroad that we consider relevant may be incorrect, which may negatively impact our ability to develop and market our product candidates. Our failure to identify and correctly interpret relevant patents may negatively impact our ability to develop and market our products.

One aspect of the determination of patentability of our inventions depends on the scope and content of the "prior art," information that was or is deemed available to a person of skill in the relevant art prior to the priority date of the claimed invention. There may be prior art of which we are not aware that may affect the patentability of our patent claims or, if issued, affect the validity or enforceability of a patent claim. Further, we may not be aware of all third-party intellectual property rights potentially relating to our product candidates or their intended uses, and as a result the impact of such third-party intellectual property rights upon the patentability of our own patents and patent applications, as well as the impact of such third-party intellectual property upon our freedom to operate, is highly uncertain. Because patent applications in the United States and most other countries are confidential for typically a period of 18 months after filing, or may not be published at all, we cannot be certain that we were the first to file any patent application related to our product candidates. As a result, the issuance, scope, validity, enforceability and commercial value of our patent rights are highly uncertain. Furthermore, for U.S. applications in which all claims are entitled to a priority date before March 16, 2013, an interference proceeding can be provoked by a third party or instituted by the USPTO to determine who was the first to invent any of the subject matter covered by the patent claims of our applications. For U.S. applications containing a claim not entitled to priority before March 16, 2013, there is a greater level of uncertainty in the patent law in view of the passage of the America Invents Act, which brought into effect significant changes to the U.S. patent laws, including new procedures for challenging pending patent applications and issued patents.

If our trademarks and trade names are not adequately protected, we may not be able to build name recognition in our markets of interest and our business may be adversely affected.

Our trademarks or trade names may be challenged, opposed, infringed, circumvented, invalidated, cancelled, declared generic, determined to be not entitled to registration, or determined to be infringing on other marks. During trademark registration proceedings, we may receive rejections of our applications by the USPTO or in foreign jurisdictions. Although we would be given an opportunity to respond to those rejections, we may be unable to overcome such rejections. In addition, in the USPTO and in comparable agencies in many foreign jurisdictions, third parties are given an opportunity to oppose pending trademark applications and to seek to cancel registered trademarks. Opposition or cancellation proceedings may be filed against our trademarks, and our trademarks may not survive such proceedings. Any trademark litigation could be expensive. In addition, we could be found liable for significant monetary damages, including treble damages, disgorgement of profits and attorneys' fees, if we are found to have willfully infringed a trademark. We may not be able to protect our exclusive right to these trademarks and trade names or may be forced to stop using these names, which we need for name recognition by potential collaborators or customers in our markets of interest. If we are unable to establish name recognition based on our trademarks and trade names, we may not be able to compete effectively and our business may be adversely affected. We may license our trademarks and trade names to third parties,

such as distributors. Though these license agreements may provide guidelines for how our trademarks and trade names may be used, a breach of these agreements or misuse of our trademarks and tradenames by our licensees may jeopardize our rights in or diminish the goodwill associated with our trademarks and trade names.

Risks Related to Our Dependence on Third Parties

Arena currently performs or supports many of our operating activities and will continue to do so after the completion of this offering pursuant to a services agreement, and if we are unable to replicate or replace these functions if this services agreement is terminated, our operations could be adversely affected.

In October 2020, we entered into a services agreement with Arena (Services Agreement). Under this agreement, we receive and anticipate continuing to receive from Arena certain research and development, general administrative, financial and tax, and intellectual property services. Because our company does not yet have sufficient internal capabilities to perform these functions, we are substantially dependent on the Services Agreement for the operation of our company. The term of the Services Agreement will continue until December 31, 2021 and will automatically renew for successive one year terms unless sooner terminated by either party. Arena may terminate the Services Agreement by giving us 180 days' notice prior to June 30, 2021, or 60 days' notice after June 30, 2021.

We expect that our general and administrative expenses will increase substantially for the foreseeable future to support our increased research and development activities and increased costs of operating as a public company and this will require building and developing our internal resources to become less reliant on Arena, prior to the termination of the Services Agreement. Further, if Arena fails to perform its obligations under the Services Agreement, we would be required to build and develop our internal capabilities more quickly than anticipated, and it is possible that we will not be able to do so within the time needed to operate our business effectively.

We do not have our own manufacturing capabilities and will rely on third parties to produce clinical and commercial supplies of our current and any future product candidates. This reliance on third parties increases the risk that we will not have sufficient quantities of our product candidates or such quantities at an acceptable cost, which could delay, prevent or impair our development or commercialization efforts.

We have no experience in drug formulation or manufacturing and do not own or operate, and we do not expect to own or operate, facilities for drug manufacturing, storage and distribution, or testing. We will be dependent on third parties to manufacture the clinical supplies of our product candidates.

Further, we also will rely on third-party manufacturers to supply us with sufficient quantities of our product candidates, to be used, if approved, for commercialization. We do not have long-term supply agreements. Furthermore, the raw materials for our product candidates are sourced, in some cases, from a single-source supplier. If we were to experience an unexpected loss of supply of any of our product candidates or any of our future 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, any pending or ongoing clinical trials. For example, the extent to which the COVID-19 pandemic impacts our ability to procure sufficient supplies for the development of our products and product candidates will depend on the severity and duration of the spread of the virus, and the actions undertaken to contain COVID-19 or treat its effects. Any significant delay in the supply of a product candidate, or the raw material components thereof, for an ongoing clinical trial due to the need to replace a third-party manufacturer could considerably delay completion of our clinical trials, product testing and potential regulatory approval of our product candidates.

Further, our reliance on third-party manufacturers entails risks to which we would not be subject if we manufactured product candidates ourselves, including:

- inability to meet our drug specifications and quality requirements consistently;
- delay or inability to procure or expand sufficient manufacturing capacity;

[Table of Contents](#)

- issues related to scale-up of manufacturing;
- costs and validation of new equipment and facilities required for scale-up;
- failure to comply with cGMP or similar foreign standards;
- inability to negotiate manufacturing agreements with third parties under commercially reasonable terms, if at all;
- termination or nonrenewal of manufacturing agreements with third parties in a manner or at a time that is costly or damaging to us;
- reliance on single sources for drug components;
- lack of qualified backup suppliers for those components that are currently purchased from a sole or single source supplier;
- misappropriation of proprietary information, including our trade secrets and know-how;
- the mislabeling of clinical supplies, potentially resulting in the wrong dose amounts being supplied or study drug or placebo not being properly identified;
- clinical supplies not being delivered to clinical sites on time, leading to clinical trial interruptions, or of drug supplies not being distributed to commercial vendors in a timely manner, resulting in lost sales;
- operations of our third-party manufacturers or suppliers could be disrupted by conditions unrelated to our business or operations, including the bankruptcy of the manufacturer or supplier; and
- carrier disruptions or increased costs that are beyond our control.

We do not have complete control over all aspects of the manufacturing process of, and are dependent on, our contract manufacturing partners for compliance with cGMP regulations for manufacturing both active drug substances and finished drug products. Third-party manufacturers may not be able to comply with cGMP regulations or similar regulatory requirements outside of the United States. If our contract 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 marketing approval for their manufacturing facilities. In addition, we do not have control over the ability of our contract manufacturers to maintain adequate quality control, quality assurance and qualified personnel. If the FDA or a comparable foreign regulatory authority does not approve these facilities for the manufacture of our product candidates or if it withdraws any such approval in the future, we may need to find alternative manufacturing facilities, which would significantly impact our ability to develop, obtain marketing approval for or market our product candidates, if approved. Our failure, or the failure of our third-party manufacturers, to comply with applicable regulations could result in sanctions being imposed on us, including fines, injunctions, civil penalties, delays, suspension or withdrawal of approvals, license revocation, seizures or recalls of product candidates or drugs, operating restrictions and criminal prosecutions, any of which could significantly and adversely affect supplies of our product candidates or drugs and harm our business and results of operations.

Our current and anticipated future dependence upon others for the manufacture of our product candidates or drugs may adversely affect our future profit margins and our ability to commercialize any product candidates that receive marketing approval on a timely and competitive basis.

We intend to rely on third parties to conduct, supervise and monitor our preclinical studies and clinical trials, and if those third parties perform in an unsatisfactory manner, it may harm our business.

We do not currently have the ability to independently conduct any clinical trials. We intend to rely on CROs and clinical trial sites to ensure the proper and timely conduct of our preclinical studies and clinical trials, and we expect to have limited influence over their actual performance. We intend to rely upon CROs to monitor and

manage data for our clinical programs, as well as the execution of future nonclinical studies. We expect to control only certain aspects of our CROs' activities. Nevertheless, we will be responsible for ensuring that each of our preclinical studies or clinical trials are 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 will be required to comply with the good laboratory practices (GLPs) and GCPs, which are regulations and guidelines enforced by the FDA and comparable foreign regulatory authorities in the form of International Conference on Harmonization guidelines for any of our product candidates that are in preclinical and clinical development. The regulatory authorities enforce GCPs through periodic inspections of trial sponsors, principal investigators and clinical trial sites. Although we will rely on CROs to conduct GCP-compliant clinical trials, we remain responsible for ensuring that each of our GLP preclinical studies and clinical trials is conducted in accordance with its investigational plan and protocol and applicable laws and regulations, and our reliance on the CROs does not relieve us of our regulatory responsibilities. If we or our CROs fail to comply with 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. Accordingly, if our CROs fail to comply with these regulations or fail to recruit a sufficient number of subjects, we may be required to repeat clinical trials, which would delay the regulatory approval process.

While we will have agreements governing their activities, our CROs will not be our employees, and we will not control whether or not they devote sufficient time and resources to our future clinical and nonclinical programs. These CROs may also have relationships with other commercial entities, including our competitors, for whom they may also be conducting clinical trials, or other drug development activities which could harm our business. We face the risk of potential unauthorized disclosure or misappropriation of our intellectual property by CROs, which may reduce our trade secret protection and allow our potential competitors to access and exploit our proprietary technology. If our CROs do not successfully carry out their contractual duties or obligations, fail to meet expected deadlines, or if the quality or accuracy of the clinical data they obtain is compromised due to the failure to adhere to our clinical protocols or regulatory requirements or for any 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 any product candidate that we develop. As a result, our financial results and the commercial prospects for any product candidate that we develop would be harmed, our costs could increase, and our ability to generate revenue could be delayed.

In addition, quarantines, shelter-in-place, and similar government orders, or the perception that such orders, shutdowns or other restrictions on the conduct of business operations could occur, related to COVID-19 or other infectious diseases could impact personnel at our CROs, which could disrupt our clinical timelines, which could have a material adverse impact on our business, prospects, financial condition, and results of operations.

If our relationship with these CROs terminates, we may not be able to enter into arrangements with alternative CROs or do so on commercially reasonable terms. 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 negatively impact our ability to meet our desired clinical development timelines. Though we intend to 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 negative impact on our business, financial condition and prospects.

In addition, principal investigators for our clinical trials may serve as scientific advisors or consultants to us from time to time and receive compensation in connection with such services. Under certain circumstances, we may be required to report some of these relationships to the FDA. The FDA may conclude that a financial relationship between us and a principal investigator has created a conflict of interest or otherwise affected interpretation of the trial. The FDA may therefore question the integrity of the data generated at the applicable clinical trial site and the utility of the clinical trial itself may be jeopardized. This could result in a delay in

approval, or rejection, of our marketing applications by the FDA and may ultimately lead to the denial of marketing approval of our current and future product candidates.

Our product candidates may be regulated as controlled substances, the making, use, sale, importation, exportation, and distribution of which are subject to significant regulation by the U.S. Drug Enforcement Administration (DEA) and other regulatory agencies.

Our product candidates may be classified as controlled substances, which are subject to state, federal, and foreign laws and regulations regarding their manufacture, use, sale, importation, exportation, and distribution. Among other things, controlled substances are regulated under the federal Controlled Substances Act of 1970 (CSA), and regulations of the DEA.

The DEA regulates controlled substances as Schedule I, II, III, IV or V substances. Schedule I substances by definition have no established medicinal use and may not be marketed or sold in the United States. A pharmaceutical product may be listed as Schedule II, III, IV or V, with Schedule II substances considered to present the highest risk of abuse and Schedule V substances the lowest relative risk of abuse among such substances. Prior to commercialization, centrally acting drugs are generally subject to review and potential scheduling by the DEA. It is possible that LP352 or our other product candidates may be regulated by the DEA as a Schedule IV controlled substance, which would subject such product candidates to additional restrictions regarding their manufacture, shipment, storage, sale and use, depending on the scheduling of the active ingredients, and may limit the commercial potential of any of our product candidates, if approved. For example, BELVIQ and FINTEPLA are Schedule IV controlled substances.

Various states also independently regulate controlled substances. Though state controlled substances laws often mirror federal law, because the states are separate jurisdictions, they may separately schedule drugs as well. While some states automatically schedule a drug when the DEA does so, in other states there must be rulemaking or a legislative action. State scheduling may delay commercial sale of any controlled substance drug product for which we obtain federal regulatory approval and adverse scheduling could impair the commercial attractiveness of such product. We or our collaborators must also obtain separate state registrations in order to be able to obtain, handle and distribute controlled substances for clinical trials or commercial sale, and failure to meet applicable regulatory requirements could lead to enforcement and sanctions from the states in addition to those from the DEA or otherwise arising under federal law.

For any of our product candidates classified as controlled substances, we and our suppliers, manufacturers, contractors, customers and distributors are required to obtain and maintain applicable registrations from state, federal and foreign law enforcement and regulatory agencies and comply with state, federal and foreign laws and regulations regarding the manufacture, use, sale, importation, exportation and distribution of controlled substances. There is a risk that DEA regulations may limit the supply of the compounds used in clinical trials for our product candidates, and, in the future, the ability to produce and distribute our products in the volume needed to meet commercial demand. Regulations associated with controlled substances govern manufacturing, labeling, packaging, testing, dispensing, production and procurement quotas, recordkeeping, reporting, handling, shipment and disposal. These regulations increase the personnel needs and the expense associated with development and commercialization of product candidates including controlled substances. The DEA, and some states, conduct periodic inspections of registered establishments that handle controlled substances. Failure to obtain and maintain required registrations or comply with any applicable regulations could delay or preclude us from developing and commercializing our product candidates containing controlled substances and subject us to enforcement action. The DEA may seek civil penalties, refuse to renew necessary registrations or initiate proceedings to revoke those registrations. In some circumstances, violations could lead to criminal proceedings. Because of their restrictive nature, these regulations could limit commercialization of any of our product candidates that are classified as controlled substances.

If we or our third-party manufacturers use hazardous and biological materials in a manner that causes injury or violates applicable law, we may be liable for damages.

Our research and development activities involve the controlled use of potentially hazardous substances, including chemical and biological materials, by our third-party manufacturers. Our manufacturers are subject to federal, state, and local laws and regulations in the United States governing the use, manufacture, storage, handling and disposal of medical, radioactive and hazardous materials. Although we believe that our manufacturers' procedures for using, handling, storing and disposing of these materials comply with legally prescribed standards, we cannot completely eliminate the risk of contamination or injury resulting from medical, radioactive or hazardous materials. As a result of any such contamination or injury, we may incur liability or local, city, state or federal authorities may curtail the use of these materials and interrupt our business operations. In the event of an accident, we could be held liable for damages or penalized with fines, and the liability could exceed our resources. We do not have any insurance for liabilities arising from medical radioactive or hazardous materials. Compliance with applicable environmental laws and regulations is expensive, and current or future environmental regulations may impair our research, development, and production efforts, which could harm our business, prospects, financial condition, or results of operations.

Risks Related to Our Business Operations, Employee Matters and Managing Growth

COVID-19 has impacted and could continue to adversely impact our business.

The COVID-19 pandemic continues to rapidly evolve. As a result of the COVID-19 pandemic, we have faced and may continue to face delays in meeting our anticipated timelines for our ongoing and planned clinical trials. Specifically, the initiation of the MAD portion of the Phase 1 clinical trial of LP352 was delayed, in part, as a result of the impact of the COVID-19 pandemic on the clinical site in the United Kingdom that conducted the SAD portion of the Phase 1 clinical trial for LP352, and subsequently we modified the protocol and relocated the MAD portion of such trial to a new clinical site in the United States. The extent to which the COVID-19 pandemic continues to impacts our business, our clinical development and regulatory efforts will depend on future developments that are highly uncertain and cannot be predicted with confidence, such as the duration of the outbreak, travel restrictions, quarantines, social distancing requirements and business closures in the United States and other countries, and business disruptions, and the effectiveness of actions taken in the United States and other countries to contain and treat the disease. Accordingly, we do not yet know the full extent of potential delays or impacts on our business, our clinical and regulatory activities, healthcare systems or the global economy as a whole. However, these impacts have previously impacted and could in the future adversely affect our business, financial condition, results of operations and growth prospects.

In addition, to the extent the ongoing COVID-19 pandemic adversely affects our business and results of operations, it may also have the effect of heightening many of the other risks and uncertainties described in this "Risk Factors" section.

We are highly dependent on the services of our senior management team and if we are not able to retain these members of our management team and recruit and retain additional management, clinical and scientific personnel, our business will be harmed.

We are highly dependent on our senior management team. The employment agreements we have with these officers do not prevent such persons from terminating their employment with us at any time. The loss of the services of any of these persons could impede the achievement of our research, development and commercialization objectives.

In addition, we will need to attract, retain and motivate highly qualified additional management, clinical and scientific personnel. If we are not able to retain our management and to attract, on acceptable terms, additional qualified personnel necessary for the continued development of our business, we may not be able to sustain our operations or grow.

We may not be able to attract or retain qualified personnel in the future due to the intense competition for qualified personnel among biotechnology, pharmaceutical and other businesses. Many of the other pharmaceutical companies that we compete against for qualified personnel and consultants have greater financial and other resources, different risk profiles and a longer history in the industry than we do. They also may provide more diverse opportunities and better chances for career advancement. Some of these characteristics may be more appealing to high-quality candidates and consultants than what we have to offer. If we are unable to continue to attract, retain and motivate high-quality personnel and consultants to accomplish our business objectives, the rate and success at which we can discover and develop product candidates and our business will be limited and we may experience constraints on our development objectives.

Our future performance will also depend, in part, on our ability to successfully integrate newly hired executive officers into our management team and our ability to develop an effective working relationship among senior management. Our failure to integrate these individuals and create effective working relationships among them and other members of management could result in inefficiencies in the development and commercialization of our product candidates, harming future regulatory approvals, sales of our product candidates and our results of operations. Additionally, we do not currently maintain “key person” life insurance on the lives of our executives or any of our employees.

We will need to expand our organization, and we may experience difficulties in managing this growth, which could disrupt our operations.

As of November 30, 2020, we had three full-time employees. We currently rely on Arena for certain research and development, general administrative, financial, accounting, tax, intellectual property and other legal services, and we will need to expand our organization to hire qualified personnel to perform these functions internally. Our management may need to divert significant attention and time to managing these growth activities. We may not be able to effectively manage the expansion of our operations, which may result in weaknesses in our infrastructure, operational inefficiencies, loss of business opportunities, loss of employees and reduced productivity among remaining employees. Our expected growth could require significant capital expenditures and may divert financial resources from other projects, such as the development of our current and potential future product candidates. If our management is unable to effectively manage our growth, our expenses may increase more than expected, our ability to generate and grow revenue could be reduced and we may not be able to implement our business strategy. Our future financial performance, our ability to commercialize product candidates, develop a scalable infrastructure and compete effectively will depend, in part, on our ability to effectively manage any future growth.

Our employees, principal investigators, consultants and commercial partners may engage in misconduct or other improper activities, including non-compliance with regulatory standards and requirements and insider trading.

We are exposed to the risk of fraud or other misconduct by our employees, principal investigators, consultants and commercial partners. Misconduct by these parties could include intentional failures to comply with FDA regulations or the regulations applicable in other jurisdictions, provide accurate information to the FDA and other regulatory authorities, comply with healthcare fraud and abuse laws and regulations in the United States and abroad, report financial information or data accurately or disclose unauthorized activities to us. In particular, sales, marketing and business arrangements in the healthcare industry are subject to extensive laws and regulations intended to prevent fraud, misconduct, kickbacks, self-dealing and other abusive practices. These laws and regulations restrict or prohibit a wide range of pricing, discounting, marketing and promotion, sales commission, customer incentive programs and other business arrangements. Such misconduct also could involve the improper use of information obtained in the course of clinical trials or interactions with the FDA or other regulatory authorities, which could result in regulatory sanctions and cause serious harm to our reputation. It is not always possible to identify and deter employee misconduct, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from

government investigations or other actions or lawsuits stemming from a failure to comply with these laws or regulations. If any such actions are instituted against us and we are not successful in defending ourselves or asserting our rights, those actions could have a negative impact on our business, financial condition, results of operations and prospects, including the imposition of significant fines or other sanctions.

Significant disruptions of our information technology systems or data security incidents could result in significant financial, legal, regulatory, business and reputational harm to us.

We are increasingly dependent on information technology systems and infrastructure, including mobile technologies, to operate our business. In the ordinary course of our business, we collect, store, process and transmit large amounts of sensitive information, including intellectual property, proprietary business information, personal information and other confidential information. It is critical that we do so in a secure manner to maintain the confidentiality, integrity and availability of such sensitive information. We have also outsourced elements of our operations (including elements of our information technology infrastructure) to third parties, and as a result, we manage a number of third-party vendors who may or could have access to our computer networks or our confidential information. In addition, many of those third parties in turn subcontract or outsource some of their responsibilities to third parties. While all information technology operations are inherently vulnerable to inadvertent or intentional security breaches, incidents, attacks and exposures, the accessibility and distributed nature of our information technology systems, and the sensitive information stored on those systems, make such systems potentially vulnerable to unintentional or malicious, internal and external attacks on our technology environment. In addition, due to the COVID-19 pandemic, we have enabled all of our employees to work remotely, which may make us more vulnerable to cyberattacks. Potential vulnerabilities can be exploited from inadvertent or intentional actions of our employees, third-party vendors, business partners, or by malicious third parties. Attacks of this nature are increasing in their frequency, levels of persistence, sophistication and intensity, and are being conducted by sophisticated and organized groups and individuals with a wide range of motives (including, but not limited to, industrial espionage) and expertise, including organized criminal groups, “hacktivists,” nation states and others. In addition to the extraction of sensitive information, such attacks could include the deployment of harmful malware, ransomware, denial-of-service attacks, social engineering and other means to affect service reliability and threaten the confidentiality, integrity and availability of information. In addition, the prevalent use of mobile devices increases the risk of data security incidents.

Significant disruptions of our, our third-party vendors’ and/or business partners’ information technology systems or other similar data security incidents could adversely affect our business operations and/or result in the loss, misappropriation, and/or unauthorized access, use or disclosure of, or the prevention of access to, sensitive information, which could result in financial, legal, regulatory, business and reputational harm to us. In addition, information technology system disruptions, whether from attacks on our technology environment or from computer viruses, natural disasters, terrorism, war and telecommunication and electrical failures, could result in a material disruption of our development programs and our business operations. For example, the loss of clinical trial data from completed or future clinical trials could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data. Additionally, theft of our intellectual property or proprietary business information could require substantial expenditures to remedy. If we or our third-party collaborators, consultants, contractors, suppliers, or service providers were to suffer an attack or breach, for example, that resulted in the unauthorized access to or use or disclosure of personal or health information, we may have to notify consumers, partners, collaborators, government authorities, and the media, and may be subject to investigations, civil penalties, administrative and enforcement actions, and litigation, any of which could harm our business and reputation.

There is no way of knowing with certainty whether we have experienced any data security incidents that have not been discovered. While we have no reason to believe this to be the case, attackers have become very sophisticated in the way they conceal access to systems, and many companies that have been attacked are not aware that they have been attacked. Any event that leads to unauthorized access, use or disclosure of personal information, including but not limited to personal information regarding our patients or employees, could disrupt

our business, harm our reputation, compel us to comply with applicable federal and/or state breach notification laws and foreign law equivalents, subject us to time consuming, distracting and expensive litigation, regulatory investigation and oversight, mandatory corrective action, require us to verify the correctness of database contents, or otherwise subject us to liability under laws, regulations and contractual obligations, including those that protect the privacy and security of personal information. This could result in increased costs to us, and result in significant legal and financial exposure and/or reputational harm. In addition, any failure or perceived failure by us or our vendors or business partners to comply with our privacy, confidentiality or data security-related legal or other obligations to third parties, or any further security incidents or other inappropriate access events that result in the unauthorized access, release or transfer of sensitive information, which could include personally identifiable information, may result in governmental investigations, enforcement actions, regulatory fines, litigation, or public statements against us by advocacy groups or others, and could cause third parties, including clinical sites, regulators or current and potential partners, to lose trust in us or we could be subject to claims by third parties that we have breached our privacy- or confidentiality-related obligations, which could materially and adversely affect our business and prospects. Moreover, data security incidents and other inappropriate access can be difficult to detect, and any delay in identifying them may lead to increased harm of the type described above. While we have implemented security measures intended to protect our information technology systems and infrastructure, there can be no assurance that such measures will successfully prevent service interruptions or security incidents.

Risks Related to This Offering and Ownership of Our Common Stock

We do not know whether an active, liquid and orderly trading market will develop for our common stock or what the market price of our common stock will be and as a result it may be difficult for you to sell your shares of our common stock.

Prior to this offering there has been no public market for shares of our common stock. Although we have applied to list our common stock on the Nasdaq Global Market (Nasdaq) an active trading market for our shares may never develop or be sustained following this offering. You may not be able to sell your shares quickly or at the market price if trading in shares of our common stock is not active. The initial public offering price for our common stock will be determined through negotiations with the underwriters, and the negotiated price may not be indicative of the market price of our common stock after the offering. As a result of these and other factors, you may be unable to resell your shares of our common stock at or above the initial public offering price. Further, an inactive market may also impair our ability to raise capital by selling shares of our common stock and may impair our ability to enter into strategic partnerships or acquire companies or products by using our shares of common stock as consideration.

The price of our stock may be volatile, and you could lose all or part of your investment.

The trading price of our common stock following this offering is likely to be highly volatile and could be subject to wide fluctuations in response to various factors, some of which are beyond our control, including limited trading volume. In addition to the factors discussed in this “Risk Factors” section and elsewhere in this prospectus, these factors include:

- the commencement, enrollment or results of our ongoing and planned preclinical studies and clinical trials, or any future pre-clinical studies or clinical trials, we may conduct of our current and any future product candidates, or changes in the development status of our current and any future product candidates;
- any delay in our regulatory filings for our current and any future product candidates and any adverse development or perceived adverse development with respect to the applicable regulatory authority’s review of such filings, including without limitation the FDA’s issuance of a “refusal to file” letter or a request for additional information;
- adverse results or delays in our preclinical studies and clinical trials;
- our decision to initiate a clinical trial, not to initiate a clinical trial, or to terminate an existing clinical trial;

Table of Contents

- adverse regulatory decisions, including failure to receive regulatory approval for our current and any future product candidates;
- changes in laws or regulations applicable to our current and any future product candidates, including but not limited to clinical trial requirements for approvals;
- the failure to obtain coverage and adequate reimbursement of our current and any future product candidates, if approved;
- changes on the structure of healthcare payment systems;
- any changes to our relationship with any manufacturers, suppliers, licensors, future collaborators or other strategic partners;
- our inability to obtain adequate product supply for any approved drug product or inability to do so at acceptable prices;
- our inability to establish collaborations if needed;
- our failure to commercialize our current and any future product candidates;
- additions or departures of key scientific or management personnel;
- unanticipated serious safety concerns related to the use of our current and any future product candidates;
- introduction of new products or services offered by us or our competitors, or the release or publication of clinical trial results from competing product candidates;
- announcements of significant acquisitions, strategic partnerships, joint ventures, or capital commitments by us or our competitors;
- our ability to effectively manage our growth;
- actual or anticipated variations in quarterly operating results;
- our cash position;
- our failure to meet the estimates and projections of the investment community or that we may otherwise provide to the public;
- publication of research reports about us or our industry or positive or negative recommendations or withdrawal of research coverage by securities analysts;
- changes in the market valuations of similar companies;
- overall performance of the equity markets;
- issuances of debt or equity securities;
- sales of our common stock by us or our stockholders in the future, including sales of our common stock by Arena, or the perception that such sales may occur;
- trading volume of our common stock;
- changes in accounting practices;
- ineffectiveness of our internal controls;
- disputes or other developments relating to proprietary rights, including patents, litigation matters, and our ability to obtain patent protection for our technologies;
- significant lawsuits, including patent or stockholder litigation;
- general political and economic conditions, including the COVID-19 pandemic; and
- other events or factors, many of which are beyond our control.

In addition, the stock market in general, and biopharmaceutical 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. If the market price of our common stock after this offering does not exceed the initial public offering price, you may not realize any return on your investment in us and may lose some or all of your investment. In the past, securities class action litigation has often been instituted against companies following periods of volatility in the market price of a company's securities. This type of litigation, if instituted, could result in substantial costs and a diversion of management's attention and resources, which would harm our business, operating results or financial condition.

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 would therefore be limited to the appreciation, if any, of their stock.

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.

Prior to this offering, our executive officers, directors, greater than 5% holders, and their affiliates beneficially owned approximately 96.0% of our voting stock as of November 1, 2020, and, upon the closing of this offering, that same group will hold approximately % of our outstanding voting stock (assuming no exercise of the underwriters' option to purchase additional shares). Therefore, even after this offering, these stockholders will have the ability to influence us through this ownership position. These stockholders may be able to determine all matters requiring stockholder approval. For example, these stockholders 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 feel are in your best interest as one of our stockholders.

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

The initial public offering price is substantially higher than the net tangible book value per share of our common stock. Investors purchasing common stock in this offering will pay a price per share that substantially exceeds the book value 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 the assumed initial public offering price of \$ per share and after deducting underwriting discounts and commissions and estimated offering expenses payable by us. Further, investors purchasing common stock in this offering will contribute approximately % of the total amount invested by stockholders since our inception, but will own only approximately % of the shares of common stock outstanding after giving effect to this offering.

This dilution is due to our investors who purchased shares prior to this offering having paid substantially less when they purchased their shares than the price offered to the public in this offering and the exercise of stock options granted to our employees. To the extent outstanding options are exercised, there will be further dilution to new investors. 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. For a further description of the dilution that you will experience immediately after this offering, see the section entitled "Dilution."

Sales of a substantial number of shares of our common stock by our existing stockholders, including Arena, in the public market, or the perception that such sales could occur, could cause our stock price to fall.

If our existing stockholders sell, or indicate an intention to sell, substantial amounts of our common stock in the public market after the lock-up and other legal restrictions on resale discussed in this prospectus lapse, the trading price of our common stock could decline. Based on shares of common stock outstanding as of September 30, 2020, after giving effect to the issuance of 5,600,000 shares of our Series A preferred stock in October 2020, upon the closing of this offering we will have outstanding a total of _____ shares of common stock. Of these shares, only the shares of common stock sold in this offering by us, plus any shares sold upon exercise of the underwriters' option to purchase additional shares, will be freely tradable without restriction in the public market immediately following this offering.

In addition, immediately following the completion of this offering, Arena will own _____ % of our outstanding shares of common stock (or _____ % if the underwriters exercise their option to purchase additional shares in full). Subject to the restrictions described in the paragraph below, future sales of these shares in the public market will be subject to the volume and other restrictions of Rule 144 under the Securities Act for so long as Arena is deemed to be our affiliate, unless the shares to be sold are registered with the SEC. The sale by Arena of a substantial number of shares after this offering, or a perception that such sales could occur, could significantly reduce the market price of our common stock.

We expect that the lock-up agreements pertaining to this offering will expire 180 days from the date of this prospectus. After the lock-up agreements expire, up to an additional _____ shares of common stock will be eligible for sale in the public market, of which shares are held by directors, executive officers, and other affiliates and will be subject to volume limitations under Rule 144 under the Securities Act. In addition, shares of common stock that are either subject to outstanding options or reserved for future issuance under our employee benefit plans will become eligible for sale in the public market to the extent permitted by the provisions of various vesting schedules, the lock-up agreements, and Rule 144 and Rule 701 under the Securities Act. If these additional shares of common stock are sold, or if it is perceived that they will be sold, in the public market, the trading price of our common stock could decline.

After 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 180-day lock-up agreements described above. See the section entitled "Description of Capital Stock—Registration Rights." 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 held by affiliates, as defined in Rule 144 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 we will need significant additional capital in the future to continue our planned operations, including conducting clinical trials, commercialization efforts if we are able to obtain marketing approval of any of our current or future product candidates, research and development activities, and costs associated with operating a public company. To raise capital, 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, investors may be materially diluted by subsequent sales. Such sales may also result in material dilution to our existing stockholders, and new investors could gain rights, preferences and privileges senior to the holders of our common stock, including shares of common stock sold in this offering.

Pursuant to our 2021 Plan, our management is authorized to grant stock options to our employees, directors and consultants. Additionally, the number of shares of our common stock reserved for issuance under our 2021

Plan will automatically increase on January 1 of each year, beginning on January 1, 2022 and continuing through and including January 1, 2031, 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. In addition, pursuant to our ESPP, the number of shares of our common stock reserved for issuance will automatically increase on January 1 of each calendar year, beginning on January 1, 2022 (through January 1, 2031), by the lesser of (i) % of the total number of shares of our common stock outstanding on the last day of the calendar month before the date of the automatic increase, and (ii) shares; provided that before the date of any such increase, our board of directors may determine that such increase will be less than the amount set forth in clauses (i) and (ii). Unless our board of directors elects not to increase the number of shares available for future grant each year, our stockholders may experience additional dilution, which could cause our stock price to fall.

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 from this offering, including for any of the purposes described in the section entitled “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. Our management might not apply our net proceeds in ways that ultimately increase the value of your investment. The failure by our management to apply these funds effectively could harm our business. We intend to invest the net proceeds to us from the offering that are not used as described above in short- and medium-term, investment-grade, interest-bearing instruments, certificates of deposit or direct or guaranteed obligations of the U.S. government. These investments may not yield a favorable return to our stockholders. If we do not invest or apply the net proceeds from this offering in ways that enhance stockholder value, we may fail to achieve expected financial results, which could cause our stock price to decline.

We are an emerging growth company and a smaller reporting company, and the reduced reporting requirements applicable to emerging growth companies and smaller reporting 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 not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act, reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements and exemptions from the requirements of holding nonbinding advisory votes on executive compensation and stockholder approval of any golden parachute payments not previously approved. We could be an emerging growth company until December 31, 2026, although circumstances could cause us to lose that status earlier, including if we become a “large accelerated filer” as defined in Rule 12b-2 under the Exchange Act or if we have total annual gross revenue of \$1.07 billion or more during any fiscal year before that time, in which cases we would no longer be an emerging growth company as of the following December 31 or, if we issue more than \$1.0 billion in non-convertible debt during any three year period before that time, we would cease to be an emerging growth company immediately. 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 not being required to comply 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. Investors may 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.

In addition, the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. This provision allows an emerging

growth company to delay the adoption of accounting standards that have different effective dates for public and private companies until those standards would otherwise apply to private companies. We have elected to avail ourselves of this exemption from new or revised accounting standards, and therefore we will not be subject to the same requirements to adopt new or revised accounting standards as other public companies that are not emerging growth companies.

We are also a “smaller reporting company” as defined in the Exchange Act. We may continue to be a smaller reporting company even after we are no longer an emerging growth company. We may take advantage of certain of the scaled disclosures available to smaller reporting companies and will be able to take advantage of these scaled disclosures for so long as our voting and non-voting common stock held by non-affiliates is less than \$250.0 million measured on the last business day of our second fiscal quarter, or our annual revenue is less than \$100.0 million during the most recently completed fiscal year and our voting and non-voting common stock held by non-affiliates is less than \$700.0 million measured on the last business day of our second fiscal quarter.

Delaware law and provisions in our amended and restated certificate of incorporation and amended and restated bylaws that will be in effect at the completion of this offering could make a merger, tender offer or proxy contest difficult, thereby depressing the trading price of our common stock.

Provisions of our amended and restated certificate of incorporation and amended and restated bylaws, which will become effective immediately prior to and upon the completion of this offering, respectively, 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 will:

- permit our board of directors to issue up to 10,000,000 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 our board of directors or any individual director may only be removed with cause and the affirmative vote of the holders of at least 66-2/3% of the voting power of all of our then-outstanding common stock;
- 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);
- provide that special meetings of our stockholders may be called only by the chair of our board of directors, 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; and

- provide that the Court of Chancery of the State of Delaware will be the sole and exclusive forum for the following types of actions or proceedings under Delaware statutory or common law: (i) any derivative action or proceeding brought on our behalf; (ii) any action or proceeding asserting a claim of breach of a fiduciary duty owed by any of our current or former directors, officers or other employees to us or our stockholders; (iii) any action or proceeding asserting a claim against us or any of our current or former directors, officers or other employees, arising out of or pursuant to any provision of the Delaware General Corporation Law, our certificate of incorporation or our bylaws; (iv) any action or proceeding to interpret, apply, enforce or determine the validity of our certificate of incorporation or our bylaws; (v) any action or proceeding as to which the Delaware General Corporation Law confers jurisdiction to the Court of Chancery of the State of Delaware; and (vi) any action asserting a claim against us or any of our directors, officers or other employees governed by the internal affairs doctrine, in all cases to the fullest extent permitted by law and subject to the court's having personal jurisdiction over the indispensable parties named as defendants; provided these provisions of our amended and restated certificate of incorporation and amended and restated bylaws will not apply to suits brought to enforce a duty or liability created by the Exchange Act, or any other claim for which the federal courts have exclusive jurisdiction; and provided that, unless we consent in writing to the selection of an alternative forum, to the fullest extent permitted by law, the federal district courts of the United States of America shall be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act of 1933, as amended (Securities Act).

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 66-2/3% of our then-outstanding common stock.

In addition, as a Delaware corporation, we are subject to Section 203 of the Delaware General Corporation Law. These provisions may prohibit large stockholders, in particular those owning 15% or more of our outstanding voting stock, from merging or combining with us for a certain period of time. A Delaware corporation may opt out of this provision by express provision in its original certificate of incorporation or by amendment to its certificate of incorporation or bylaws approved by its stockholders. However, we have not opted out of this provision.

These and other provisions in our amended and restated certificate of incorporation, amended and restated bylaws and Delaware law could make it more difficult for stockholders or potential acquirors to obtain control of our board of directors or initiate actions that are opposed by our then-current board of directors, including delay or impede a merger, tender offer or proxy contest involving our company. The existence of these provisions could negatively affect the price of our common stock and limit opportunities for you to realize value in a corporate transaction.

For information regarding these and other provisions, see "Description of Capital Stock."

Our amended and restated certificate of incorporation will provide that the Court of Chancery of the State of Delaware and the federal district courts of the United States of America will be the exclusive forums for substantially all disputes between us and our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers, or employees.

Our amended and restated certificate of incorporation will provide that, to the fullest extent permitted by law and subject to the court's having personal jurisdiction over the indispensable parties named as defendants, the Court of Chancery of the State of Delaware is the exclusive forum for the following types of actions or proceedings under Delaware statutory or common law:

- any derivative action or proceeding brought on our behalf;
- any action or proceeding asserting a breach of fiduciary duty owed by any of our current or former directors, officers or other employees to us or our stockholders;

- any action or proceeding asserting a claim against us or any of our current or former directors, officers or other employees arising out of or pursuant to any provision of the Delaware General Corporation Law, our certificate of incorporation or bylaws;
- any action or proceeding to interpret, apply, enforce or determine the validity of our amended and restated certificate of incorporation or our amended and restated bylaws;
- any action or proceeding as to which the Delaware General Corporation Law confers jurisdiction to the Court of Chancery of the State of Delaware; and
- any action asserting a claim against us or any of our directors, officers or other employees that is governed by the internal affairs doctrine.

This provision would not apply to suits brought to enforce a duty or liability created by the Exchange Act. Furthermore, Section 22 of the Securities Act creates concurrent jurisdiction for federal and state courts over all such Securities Act actions. Accordingly, both state and federal courts have jurisdiction to entertain such claims. To prevent having to litigate claims in multiple jurisdictions and the threat of inconsistent or contrary rulings by different courts, among other considerations, our amended and restated certificate of incorporation further provides that the federal district courts of the United States of America will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act. While the Delaware courts have determined that such choice of forum provisions are facially valid, a stockholder may nevertheless seek to bring a claim in a venue other than those designated in the exclusive forum provisions. In such instance, we would expect to vigorously assert the validity and enforceability of the exclusive forum provisions of our amended and restated certificate of incorporation. This may require significant additional costs associated with resolving such action in other jurisdictions and there can be no assurance that the provisions will be enforced by a court in those other jurisdictions.

These exclusive forum provisions may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers, or other employees, which may discourage lawsuits against us and our directors, officers and other employees. If a court were to find either exclusive forum provision in our amended and restated certificate of incorporation to be inapplicable or unenforceable in an action, we may incur further significant additional costs associated with resolving the dispute in other jurisdictions, all of which could seriously harm our business.

General Risk Factors

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. We will be subject to the reporting requirements of the Exchange Act, which will require, among other things, that we file with the SEC annual, quarterly, and current reports with respect to our business and financial condition. In addition, the Sarbanes-Oxley Act, as well as rules subsequently adopted by the SEC and Nasdaq to implement provisions of the Sarbanes-Oxley Act, impose significant requirements on public companies, including requiring establishment and maintenance of effective disclosure and financial controls and changes in corporate governance practices. Further, in July 2010, the Dodd-Frank Wall Street Reform and Consumer Protection Act (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. Emerging growth companies and smaller reporting companies are exempted from certain of these requirements, but we may be required to implement these requirements sooner than budgeted or planned and thereby incur unexpected expenses. 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 the manner in which we operate our business in ways we cannot currently anticipate.

We expect the rules and regulations applicable to public companies to substantially increase our legal and financial compliance costs and to make some activities more time-consuming and costly. If these requirements divert the attention of our management and personnel from other business concerns, they could have a material adverse effect on our business, financial condition, and results of operations. The increased costs will decrease our net income or increase our net loss, and may require us to reduce costs in other areas of our business or increase the prices of our products or services. 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 the same or similar coverage. We cannot predict or estimate the amount or timing of additional costs we may incur to respond to these requirements. The impact of these requirements could also make it more difficult for us to attract and retain qualified persons to serve on our board of directors, our board committees or as executive officers.

If we fail to maintain proper and effective internal control over financial reporting, our ability to produce accurate and timely financial statements could be impaired, investors may lose confidence in our financial reporting and the trading price of our common stock may decline.

Pursuant to Section 404 of Sarbanes-Oxley, our management will be required to report upon the effectiveness of our internal control over financial reporting beginning with the annual report for our fiscal year ending December 31, 2022. When we lose our status as an “emerging growth company” and reach an accelerated filer threshold, our independent registered public accounting firm will be required to attest to the effectiveness of our internal control over financial reporting. The rules governing the standards that must be met for our management to assess our internal control over financial reporting are complex and require significant documentation, testing and possible remediation. In addition, we currently rely on Arena for certain financial and accounting services. To comply with the requirements of being a reporting company under the Exchange Act, we will need to upgrade our information technology systems; implement additional financial and management controls, reporting systems and procedures; and hire additional accounting and finance staff. If we or, if required, our auditors are unable to conclude that our internal control over financial reporting is effective, investors may lose confidence in our financial reporting and the trading price of our common stock may decline.

We cannot assure you that there will not be material weaknesses or significant deficiencies in our internal control over financial reporting in the future. Any failure to maintain internal control over financial reporting could severely inhibit our ability to accurately report our financial condition, results of operations or cash flows. If we are unable to conclude that our internal control over financial reporting is effective, or if our independent registered public accounting firm determines we have a material weakness or significant deficiency in our internal control over financial reporting once that firm begins its Section 404 reviews, investors may lose confidence in the accuracy and completeness of our financial reports, the market price of our common stock could decline, and we could be subject to sanctions or investigations by Nasdaq, the SEC or other regulatory authorities. Failure to remedy any material weakness in our internal control over financial reporting, or to implement or maintain other effective control systems required of public companies, could also restrict our future access to the capital markets.

We could be subject to 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 biopharmaceutical 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.

Our failure to meet Nasdaq’s continued listing requirements could result in a delisting of our common stock.

If, after listing, we fail to satisfy the continued listing requirements of Nasdaq, such as the corporate governance requirements or the minimum closing bid price requirement, ***Nasdaq may take steps to delist our***

common stock. Such a delisting would likely have a negative effect on the price of our common stock and would impair your ability to sell or purchase our common stock when you wish to do so. In the event of a delisting, we can provide no assurance that any action taken by us to restore compliance with listing requirements would allow our common stock to become listed again, stabilize the market price or improve the liquidity of our common stock, prevent our common stock from dropping below the Nasdaq minimum bid price requirement or prevent future non-compliance with the listing requirements of Nasdaq.

If securities or industry analysts do not publish research or publish inaccurate or unfavorable research about our business, our stock price and trading volume could decline.

The trading market for our common stock will depend in part on the research and reports that securities or industry analysts publish about us or our business. Securities and industry analysts do not currently, and may never, publish research on our company. If no securities or industry analysts commence coverage of our company, the trading price for our stock would likely be negatively impacted. In the event securities or industry analysts initiate coverage, if one or more of the analysts who covers us downgrades our stock or publishes inaccurate or unfavorable research about our business, our stock price may decline. If one or more of these analysts ceases coverage of our company or fails to publish reports on us regularly, demand for our stock could decrease, which might cause our stock price and trading volume to decline.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements about us and our industry. All statements other than statements of historical facts contained in this prospectus, including statements regarding our future results of operations and financial position, business strategy, research and development costs, the anticipated timing, costs and conduct of our IND-enabling studies and clinical trials for our product candidates, the timing and likelihood of regulatory filings and approvals for our product candidates, our ability to commercialize our product candidates, if approved, the pricing and reimbursement of our product candidates, if approved, the potential benefits of strategic collaborations and our ability to enter into strategic arrangements, timing and likelihood of success, plans and objectives of management for future operations, and future results of anticipated products are forward-looking statements. These statements involve known and unknown risks, uncertainties and other important factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements.

In some cases, you can identify forward-looking statements by terms such as “may,” “will,” “should,” “expect,” “plan,” “anticipate,” “could,” “intend,” “target,” “project,” “contemplates,” “believes,” “estimates,” “predicts,” “potential” or “continue” or the negative of these terms or other similar expressions. The forward-looking statements in this prospectus are only predictions. We have based these forward-looking statements largely on our current expectations and projections about future events and financial trends that we believe may affect our business, financial condition and results of operations. These forward-looking statements speak only as of the date of this prospectus and are subject to a number of risks, uncertainties and assumptions described under the sections in this prospectus entitled “Risk Factors” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and elsewhere in this prospectus. Because forward-looking statements are inherently subject to risks and uncertainties, some of which cannot be predicted or quantified and some of which are beyond our control, you should not rely on these forward-looking statements as predictions of future events. The events and circumstances reflected in our forward-looking statements may not be achieved or occur and actual results could differ materially from those projected in the forward-looking statements. Moreover, we operate in an evolving environment. New risk factors and uncertainties may emerge from time to time, and it is not possible for management to predict all risk factors and uncertainties. Except as required by applicable law, we undertake no obligation to publicly update or revise any forward-looking statements contained herein, whether as a result of any new information, future events, changed circumstances or otherwise. You should, however, review the factors and risks we describe in the reports we will file from time to time with the SEC after the date of this prospectus. See the section entitled “Where You Can Find Additional Information.”

In addition, statements that “we believe” and similar statements reflect our beliefs and opinions on the relevant subject. These statements are based on information available to us as of the date of this prospectus, and while we believe such information provides a reasonable basis for these statements, such information may be limited or incomplete. Our statements should not be read to indicate that we have conducted an exhaustive inquiry into, or review of, all potentially available relevant information. These statements are inherently uncertain, and you are cautioned not to unduly rely on these statements.

MARKET, INDUSTRY AND OTHER DATA

We obtained the industry, market and competitive position data used throughout this prospectus from our own internal estimates and research, as well as from independent market research, industry and general publications and surveys, governmental agencies and publicly available information in addition to research, surveys and studies conducted by third parties. Internal estimates are derived from publicly available information released by industry analysts and third-party sources, our internal research and our industry experience, and are based on assumptions made by us based on such data and our knowledge of our industry and market, which we believe to be reasonable. In some cases, we do not expressly refer to the sources from which this data are derived. In that regard, when we refer to one or more sources of this type of data in any paragraph, you should assume that other data of this type appearing in the same paragraph are derived from the same sources, unless otherwise expressly stated or the context otherwise requires. In addition, while we believe the industry, market and competitive position data included in this prospectus are reliable and based on reasonable assumptions, such data involve risks and uncertainties and are subject to change based on various factors, including those discussed in the section entitled “Risk Factors.” These and other factors could cause results to differ materially from those expressed in the estimates made by the independent parties or by us.

USE OF PROCEEDS

We estimate that we will receive net proceeds from this offering of approximately \$ _____ million (or approximately \$ _____ million if the underwriters' option to purchase additional shares of our common stock is exercised in full) based on the assumed initial public offering price of \$ _____ per share, after deducting underwriting discounts and commissions and estimated offering expenses payable by us.

A \$1.00 increase (decrease) in the assumed initial public offering price of \$ _____ per share would increase (decrease) the net proceeds to us from this offering by approximately \$ _____ 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 underwriting discounts and commissions. Similarly, each increase (decrease) of 1.0 million shares in the number of shares of common stock offered by us would increase (decrease) the net proceeds to us from this offering by approximately \$ _____ million, assuming the initial public offering price of \$ _____ per share remains the same, and after deducting underwriting discounts and commissions.

We intend to use the net proceeds we receive from this offering as follows:

- approximately \$ _____ million to \$ _____ million to fund our development of LP352, including through the completion of our planned Phase 1b/2a clinical trial in DEEs;
- approximately \$ _____ million to \$ _____ million to fund our development of LP143 for neurodegenerative diseases associated with neuroinflammation caused by microglial activation, including through the completion of a Phase 1 clinical trial;
- approximately \$ _____ million to \$ _____ million to fund our development of LP659 across a range of CNS disorders associated with neuroinflammation, including through the completion of a Phase 1 clinical trial; and
- the remainder for additional discovery and preclinical development of additional product candidates and potential additional development of our existing product candidates, as well as headcount costs, working capital and other general corporate purposes.

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

We believe, based on our current operating plan, that the net proceeds from this offering, together with our existing cash, will be sufficient to fund our operations for at least the next _____ months. It is difficult to predict the cost and timing required to complete our clinical trials due to, among other factors, our lack of experience as a company with initiating and conducting clinical trials, the rate of patient enrollment in our planned clinical trials, filing requirements with and feedback from various regulatory agencies, clinical trial results, any impacts from the COVID-19 pandemic, and the actual costs of manufacturing and supplying our product candidates.

Our expected use of the net proceeds from this offering described above represents our current intentions based on our present plans and business condition. As of the date of this prospectus, we cannot predict with certainty all of the particular uses for the proceeds to be received upon the closing of this offering or the actual amounts that we will spend on the uses set forth above. The net proceeds from this offering, together with our cash, will not be sufficient for us to fund all of our product candidates through regulatory approval, and we will need to raise additional capital to complete the development and commercialization of all of our product candidates.

The amounts and timing of our actual expenditures will depend on numerous factors, including the time and cost necessary to conduct clinical trials and preclinical studies, the results of such trials and studies, and other factors described in the section entitled "Risk Factors" in this prospectus, as well as the amount of cash used in

[Table of Contents](#)

our operations and any unforeseen cash needs. Therefore, our actual expenditures may differ materially from the estimates described above. We may find it necessary or advisable to use the net proceeds for other purposes, and we will have broad discretion in the application of the net proceeds.

We will have broad discretion over how to use the net proceeds to us from this offering. We intend to invest the net proceeds to us from the offering that are not used as described above in short- and medium-term, investment-grade, interest-bearing instruments, certificates of deposit or direct or guaranteed obligations of the U.S. government.

DIVIDEND POLICY

Since inception, we have never declared or paid any cash dividends on our capital stock, and we do not anticipate declaring or paying, in the foreseeable future, any cash dividends on our capital stock. We intend to retain all available funds and future earnings, if any, to fund the development and expansion of our business, and we do not anticipate paying any cash dividends in the foreseeable future. Any future determination regarding the declaration and payment of dividends, if any, 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 capitalization as of September 30, 2020:

- on an actual basis;
- on a pro forma basis, giving effect to the (i) issuance of an aggregate of 5,600,000 shares of our Series A preferred stock in October 2020 and our receipt of \$56.0 million in aggregate gross proceeds therefrom, (ii) automatic conversion of all of our outstanding shares of Series A preferred stock into an aggregate of 5,600,000 shares of our common stock in connection with the closing of this offering, and (iii) filing and effectiveness of our amended and restated certificate of incorporation that will be in effect immediately prior to the closing of this offering; and
- on a pro forma as adjusted basis, giving effect to (i) the pro forma adjustments set forth above and (ii) our receipt of net proceeds from the sale of _____ shares of common stock in the offering at the assumed initial public offering price of \$ _____ per share, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

The 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 “Selected Financial Data,” “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” “Description of Capital Stock” and our financial statements and related notes included elsewhere in this prospectus.

	As of September 30, 2020		
	Actual	Pro Forma	Pro Forma, As Adjusted
	(in thousands, except share and per share amounts) (unaudited)		
Cash	\$ 217	\$56,217	\$
Series A convertible preferred stock, \$0.0001 par value; no shares authorized, issued and outstanding, actual, pro forma and pro forma as adjusted	\$ —	\$ —	\$
Stockholders’ equity (deficit):			
Preferred stock, \$0.0001 par value; no shares authorized, issued, and outstanding, actual, and shares authorized, no shares issued and outstanding, pro forma and pro forma as adjusted	—	—	
Common stock, \$0.0001 par value; 2,783,000 shares authorized, 2,783,000 shares issued and outstanding, actual, shares authorized, 8,383,000 shares issued and outstanding, pro forma; shares authorized, shares issued and outstanding, pro forma as adjusted	—	1	
Additional paid-in capital	3,348	59,347	
Accumulated deficit	(4,291)	(4,291)	
Total stockholders’ equity (deficit)	\$ (943)	\$55,057	\$
Total capitalization	\$ (943)	\$55,057	\$

A \$1.00 increase (decrease) in the assumed initial public offering price of \$ _____ per share would increase (decrease) each of our pro forma as adjusted cash, additional paid-in capital, total stockholders’ equity

[Table of Contents](#)

and total capitalization by approximately \$ 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 underwriting discounts and commissions. Similarly, each increase (decrease) of 1.0 million shares in the number of shares common stock offered by us would increase (decrease) each of our pro forma as adjusted cash, additional paid-in capital, total stockholders' equity and total capitalization by approximately \$ million, assuming the assumed initial public offering price of \$ per share remains the same, and after deducting the underwriting discounts and commissions.

If the underwriters' option to purchase additional shares of our common stock from us is exercised in full, pro forma as adjusted cash, additional paid-in capital, total stockholders' equity (deficit), total capitalization and shares of common stock outstanding as of September 30, 2020 would be \$, \$, \$, \$ and , respectively.

The number of shares of our common stock to be outstanding after this offering pro forma and pro forma as adjusted reflected in the table excludes:

- shares of our common stock issuable upon the exercise of stock options granted after September 30, 2020 under our 2020 Plan with a weighted-average exercise price of \$ per share;
- 252,500 shares of restricted common stock granted after September 30, 2020 under our 2020 Plan;
- shares of our common stock reserved for future issuance under our 2021 Plan, which will become effective upon the execution and delivery of the underwriting agreement for this offering, as well as any automatic annual increases in the number of shares of common stock reserved for issuance under our 2021 Plan and any shares underlying outstanding stock awards granted under our 2020 Plan that expire or are repurchased, forfeited, cancelled or withheld, as more fully described in the section entitled "Executive Compensation—Equity Incentive Plans"; and
- shares of our common stock reserved for issuance under our ESPP, which will become effective upon the execution and delivery of the underwriting agreement for this offering, and any automatic annual increases in the number of shares of common stock reserved for future issuance under our ESPP.

DILUTION

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

As of September 30, 2020, we had a historical net tangible book value (deficit) of \$(0.94) million, or \$(0.34) per share of common stock based on 2,783,000 shares of common stock outstanding as of such date. Our historical net tangible book value (deficit) per share represents total tangible assets less total liabilities, divided by the number of shares of common stock outstanding at September 30, 2020.

Our pro forma net tangible book value as of September 30, 2020 was \$55.1 million, or \$6.57 per share, after giving effect to the (i) issuance of an aggregate of 5,600,000 shares of our Series A preferred stock in October 2020 and our receipt of \$56.0 million in aggregate gross proceeds therefrom and (ii) automatic conversion of all of our outstanding shares of Series A preferred stock into an aggregate of 5,600,000 shares of our common stock in connection with the closing of this offering.

After giving effect to the sale by us of _____ shares of common stock in this offering at the assumed initial public offering price of \$ _____ per share, and after deducting underwriting discounts and commissions and estimated offering expenses payable by us, our pro forma as adjusted net tangible book value as of September 30, 2020 would have been \$ _____ million, or \$ _____ per share. This amount represents an immediate increase in pro forma as adjusted net tangible book value of \$ _____ per share to our existing stockholders and an immediate dilution in pro forma as adjusted net tangible book value of \$ _____ per share to investors purchasing common stock in this offering. We determine dilution by subtracting the pro forma as adjusted net tangible book value per share after this offering from the amount of cash paid by an investor for a share of common stock in this offering. The following table illustrates this dilution on a per share basis:

Assumed initial public offering price per share	\$
Historical net tangible book value (deficit) per share as of September 30, 2020	\$(0.34)
Pro forma increase in historical net tangible book value per share attributable to the pro forma transactions described in the preceding paragraphs	6.91
Pro forma net tangible book value per share as of September 30, 2020	6.57
Increase in pro forma as adjusted net tangible book value per share attributable to investors purchasing shares in this offering	
Pro forma as adjusted net tangible book value per share after this offering	
Dilution in pro forma as adjusted net tangible book value per share to investors purchasing shares in this offering	\$

The dilution information discussed above is illustrative only and may change based on the actual initial public offering price and other terms of this offering. A \$1.00 increase (decrease) in the assumed initial public offering price of \$ _____ per share would increase (decrease) our pro forma as adjusted net tangible book value per share after this offering by \$ _____ per share and increase (decrease) the dilution to investors purchasing shares in this offering by \$ _____ per share, in each case assuming the number of shares of common stock offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting the underwriting discounts and commissions. Similarly, each increase or decrease of 1.0 million shares in the number of shares of common stock offered by us would increase (decrease) our pro forma as adjusted net tangible book value by approximately \$ _____ per share and decrease (increase) the dilution to investors purchasing shares in this offering by approximately \$ _____ per share, in each case assuming the assumed initial public offering price of \$ _____ per share remains the same, and after deducting the underwriting discounts and commissions.

Table of Contents

If the underwriters exercise their option to purchase additional shares of common stock in full, the pro forma net tangible book value per share, as adjusted to give effect to this offering, would be \$ _____ per share, and the dilution in pro forma net tangible book value per share to investors in this offering would be \$ _____ per share.

The foregoing discussion and table above (other than the historical net tangible book value (deficit) calculation) are based on 8,383,000 shares of common stock outstanding as of September 30, 2020, after giving effect to the (i) issuance and sale of 5,600,000 shares of our Series A preferred stock in October 2020 and (ii) automatic conversion of all of our outstanding shares of Series A preferred stock into 5,600,000 shares of common stock in connection with the closing of this offering, and excludes:

- _____ shares of our common stock issuable upon the exercise of stock options granted after September 30, 2020 under our 2020 Plan with a weighted-average exercise price of \$ _____ per share;
- 252,500 shares of restricted common stock granted after September 30, 2020 under our 2020 Plan;
- _____ shares of our common stock reserved for future issuance under our 2021 Plan, which will become effective upon the execution and delivery of the underwriting agreement for this offering, as well as any automatic annual increases in the number of shares of common stock reserved for issuance under our 2021 Plan and any shares underlying outstanding stock awards granted under our 2020 Plan that expire or are repurchased, forfeited, cancelled or withheld, as more fully described in the section entitled “Executive Compensation—Equity Incentive Plans”; and
- _____ shares of our common stock reserved for issuance under our ESPP, which will become upon the execution and delivery of the underwriting agreement for this offering, and any automatic annual increases in the number of shares of common stock reserved for future issuance under our ESPP.

To the extent that any outstanding options are exercised or new options are issued under our stock-based compensation plans, or we issue additional shares of common stock in the future, there will be further dilution to investors participating in this offering.

SELECTED FINANCIAL DATA

The following tables set forth our selected financial data as of September 30, 2020. The statement of operations and comprehensive loss data for the period from January 3, 2020 (inception) to September 30, 2020, and the balance sheet data as of September 30, 2020, are derived from our audited financial statements that are included elsewhere in this prospectus.

You should read the following selected financial data in conjunction with the section entitled “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and our financial statements and related notes included elsewhere in this prospectus. Our historical results are not necessarily indicative of the results to be expected for any other period in the future, and our interim results are not necessarily indicative of the results to be expected for the full year or any other period.

	Period from January 3, 2020 (Inception) through September 30, 2020 (in thousands, except share and per share data)
Statement of Operations and Comprehensive Loss Data:	
Operating expenses:	
Research and development (includes related party amounts of \$559)	\$ 2,462
General and administrative (includes related party amounts of \$1,100)	1,829
Total operating expenses	4,291
Loss from operations	(4,291)
Net loss and comprehensive loss	\$ (4,291)
Net loss per share, basic and diluted ⁽¹⁾	\$ (1.56)
Weighted-average number of shares used in computing net loss per share, basic and diluted ⁽¹⁾	2,752,192

- (1) See Note 2 to our financial statements included elsewhere in this prospectus for a description of how we compute basic and diluted net loss per share and the weighted-average number of shares used in the computation of these per share amounts.

	As of September 30, 2020 (in thousands)
Balance Sheet Data:	
Cash	\$ 217
Working capital (deficit) ⁽¹⁾	(943)
Total assets	218
Total stockholders’ deficit	(943)

- (1) We define working capital as current assets less current liabilities. See our financial statements and related notes included elsewhere in this prospectus for further details regarding our current assets and current liabilities.

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

You should read the following discussion and analysis of our financial condition and results of operations together with the section of this prospectus entitled “Selected Financial Data” and our financial statements and the related notes included elsewhere in this prospectus. This discussion and other parts of this prospectus contain forward-looking statements that involve risks and uncertainties, such as statements of our plans, objectives, expectations, and intentions. As a result of many factors, including those set forth in the section of this prospectus entitled “Risk Factors,” our actual results could differ materially from the results described in or implied by the forward-looking statements contained in the following discussion and analysis. Please also see the section of this prospectus entitled “Cautionary Note Regarding Forward-Looking Statements.”

Overview

We are a clinical-stage biopharmaceutical company focused on developing novel, transformative medicines for neurological diseases. We were formed in January 2020 by Arena to advance a portfolio of centrally acting product candidates designed to be highly selective for specific GPCRs. Our small molecule product candidates were discovered out of the same platform at Arena that represents a culmination of more than 20 years of GPCR research. Our pipeline includes:

- LP352, an oral, centrally acting, highly selective 5-HT2c superagonist, that we plan to advance in a MAD portion of a Phase 1 clinical trial in , and expect to initiate a Phase 1b/2a clinical trial for the treatment of DEEs, including Dravet syndrome and Lennox-Gastaut syndrome, among others, in ;
- LP143, a centrally acting, highly selective, full CB2 agonist in IND-enabling studies for neurodegenerative diseases associated with neuroinflammation caused by microglial activation, including ALS; and
- LP659, a centrally acting, highly selective S1P1,5 receptor modulator in IND-enabling studies for CNS neuroinflammatory diseases.

We also have additional earlier discovery stage compounds.

In October 2020, we entered into the Arena License Agreement, pursuant to which Arena granted us an exclusive, royalty bearing, sublicensable, worldwide license to develop and commercialize LP352, LP143 and LP659 (pharmaceutical products containing any such compounds, the Licensed Products).

The following table provides an overview of our current programs:

Program	Mechanism of Action	Therapeutic Area	IND-Enabling	Phase 1	Phase 2	Phase 3	Anticipated Milestones	Rights*
LP352	5-HT2c Superagonist	DEEs and other refractory epilepsies	<div></div>				Ph 1 MAD	
LP143	CB2 Agonist	ALS and other neuroinflammatory disorders	<div></div>				IND	
LP659	S1P Receptor Modulator	Multiple neuroinflammatory disorders	<div></div>				IND	

* We hold worldwide rights to our product candidates in our therapeutic areas of focus for such compounds through the Arena License Agreement.

We were incorporated in January 2020. Since our inception, we have devoted substantially all of our resources to organizing and staffing our company, research and development activities, business planning, raising capital, in-licensing intellectual property rights and establishing our intellectual property portfolio, and providing general and administrative support for these operations. We have principally financed our operations to date through capital contributions from Arena and a private placement of our Series A preferred stock. As of September 30, 2020, we had cash of \$0.2 million. In October 2020, we received aggregate gross proceeds of \$56.0 million from the sale and issuance of 5,600,000 shares of our Series A preferred stock. Based on our current operating plan, we estimate that our existing cash, together with the anticipated net proceeds from this offering, will be sufficient to fund our operating expenses and capital expenditure requirements through at least the next months. However, our forecast of the period of time through which our financial resources will be adequate to support our operations is a forward-looking statement that involves risks and uncertainties, and actual results could vary materially. We have based this estimate on assumptions that may prove to be wrong, and we could deplete our capital resources sooner than we expect. We have incurred net losses and negative cash flows from operations since our inception and expect to continue to incur significant and increasing operating losses for the foreseeable future. We do not have any products approved for sale, we have not generated any revenue from the sale of products, and our ability to generate product revenue sufficient to achieve profitability will depend on the successful development and eventual commercialization of one or more of our current or future product candidates. Our net losses were \$4.3 million for the period from January 3, 2020 (inception) through September 30, 2020. As of September 30, 2020, we had an accumulated deficit of \$4.3 million.

We anticipate that our expenses will increase substantially for the foreseeable future, particularly if and as we continue to invest in our research and development activities, including conducting preclinical studies, submit INDs and conduct clinical trials for our current and future product candidates, seek marketing approvals for any product candidates that successfully complete clinical trials, expand our product pipeline, hire additional personnel and invest in and grow our business, obtain, expand, maintain, enforce and protect our intellectual property portfolio, seek regulatory approvals for our product candidates, establish a sales, marketing and distribution infrastructure and establish manufacturing capabilities, whether alone or with third parties, to commercialize product candidates for which we may obtain regulatory approval, if any, begin to commercialize any approved products, and experience any delays or encounter any issues with any of the above, including but not limited to failed studies, negative or mixed clinical trial results, safety issues or other regulatory challenges, the risk of which in each case may be exacerbated by the ongoing COVID-19 pandemic. In addition, following the closing of this offering, we expect to incur additional expenses associated with operating as a public company and in building our internal resources to become less reliant on Arena, including those related to audit, legal, regulatory and tax-related services associated with maintaining compliance with exchange listing and SEC requirements, director and officer insurance premiums and investor and public relations costs. Our net losses may fluctuate significantly from quarter-to-quarter and year-to-year, depending on a variety of factors. As a result, we will need substantial additional financing to support our continuing operations and further the development of and commercialize our product candidates. Until such time as we can generate significant revenue from product sales, if ever, we expect to finance our operations through public or private equity or debt financings or other capital sources, which may include strategic collaborations or other arrangements with third parties. We may be unable to raise additional funds or enter into such other agreements or arrangements when needed on favorable terms, or at all. If we are unable to raise capital or enter into such agreements as and when needed, we may have to significantly delay, scale back or discontinue the development or commercialization of one or more of our product candidates. Insufficient liquidity may also require us to relinquish rights to product candidates at an earlier stage of development or on less favorable terms than we would otherwise choose. Our ability to raise additional funds may be adversely impacted by potential worsening global economic conditions and disruptions to and volatility in the credit and financial markets in the United States and worldwide resulting from the ongoing COVID-19 pandemic or otherwise. Because of the numerous risks and uncertainties associated with product

development, we are unable to predict the timing or amount of increased expenses or when or if we will be able to achieve or maintain profitability. Even if we are able to generate revenue from product sales, we may not become profitable.

We do not own or operate manufacturing facilities for the production of our product candidates or other product candidates that we may develop, nor do we have plans to develop our own manufacturing operations in the foreseeable future. We currently depend on third-party contract manufacturers for all of our required raw materials, active pharmaceutical ingredient and finished products for our clinical trials. We do not have any current contractual arrangements for the manufacture of commercial supplies of our product candidates. Prior to our receipt of any approval from the FDA, if at all, we intend to enter into agreements for commercial production of our product candidates with third party suppliers. We currently employ internal resources and third-party consultants to manage our manufacturing contractors.

The global COVID-19 pandemic continues to rapidly evolve. As a result of the COVID-19 pandemic, we have faced and may continue to face delays in meeting our anticipated timelines for our ongoing and planned clinical trials. Specifically, the initiation of the MAD portion of the Phase 1 clinical trial of LP352 was delayed, in part, as a result of the impact of the COVID-19 pandemic on the clinical site in the United Kingdom that conducted the SAD portion of the Phase 1 clinical trial for LP352, and subsequently we modified the protocol and relocated the MAD portion of such trial to a new clinical site in the United States. The extent of the impact of COVID-19 on our business, operations and development timelines and plans remains uncertain, and will depend on certain developments, including the duration and spread of the outbreak and its impact on our development activities, planned clinical trial enrollment, future trial sites, CROs, third-party manufacturers, and other third parties with whom we do business, as well as its impact on regulatory authorities and our key scientific and management personnel. The ultimate impact of the COVID-19 pandemic or a similar health epidemic is highly uncertain and subject to change. To the extent possible, we are conducting business as usual, with necessary or advisable modifications to employee travel and with our employees working remotely. We will continue to actively monitor the rapidly evolving situation related to COVID-19 and may take further actions that alter our operations, including those that may be required by federal, state or local authorities, or that we determine are in the best interests of our employees and other third parties with whom we do business. At this point, the extent to which the COVID-19 pandemic may affect our business, operations and development timelines and plans, including the resulting impact on our expenditures and capital needs, remains uncertain.

Agreements with Arena

Below is a summary of the key terms for our license and other agreements with Arena. For a more detailed description of these agreements, see the sections of this prospectus entitled “Business—License Agreement with Arena” and “Certain Relationships and Related Person Transactions—Agreements with Arena.”

License Agreement

In October 2020, we entered into the Arena License Agreement, pursuant to which we obtained an exclusive, worldwide license of certain intellectual property for the Licensed Products. As consideration for the rights granted to us under the Arena License Agreement, we will be required to pay to Arena a mid-single digit royalty on net sales of Licensed Products of LP352, and a low-single digit royalty on net sales of all other Licensed Products, by us, our affiliates or our sublicensees, subject to standard reductions. Our royalty obligations continue on a Licensed Product-by-Licensed Product and country-by-country basis until the later of the (i) tenth anniversary of the first commercial sale of such product in such country or (ii) expiration of the last-to-expire valid claim of the patents licensed to us under the Arena License Agreement covering the manufacture, use or sale of such product in such country.

Royalty Purchase Agreement

In October 2020, we entered into a Royalty Purchase Agreement with Arena and 356 Royalty Inc., a wholly owned subsidiary of Arena (356 Royalty), pursuant to which we purchased the right to receive all milestone

payments, royalties, interest and other payments relating to net sales of lorcaserin, owed or otherwise payable to 356 Royalty by Eisai pursuant to the Transaction Agreement, by and among 356 Royalty and Eisai. Lorcaserin is currently in a Phase 3 clinical trial for Dravet syndrome.

Services Agreement

In October 2020, we entered into the Services Agreement under which Arena agreed to perform certain research and development services, general administrative services, management services and other mutually agreed services for us and receive service fees therefor on an hourly rate based on an annual full time equivalent rate agreed upon by the parties.

Components of Our Results of Operations

Operating Expenses

Our operating expenses consist of (i) research and development expenses and (ii) general and administrative expenses.

Research and Development

Our research and development expenses consist primarily of direct and indirect costs incurred in connection with the preclinical and clinical development of our product candidates.

Direct costs include:

- external research and development expenses incurred under agreements with Arena, CROs, investigative sites, and consultants to conduct our clinical trials and preclinical studies; and
- costs related to manufacturing our product candidates for preclinical studies and clinical trials, including fees paid to third-party manufacturers.

Indirect costs include:

- personnel-related costs, which include salaries, payroll taxes, employee benefits, and other employee-related costs, including stock-based compensation, for personnel engaged in research and development functions; and
- facilities and other various expenses.

Research and development expenses are recognized as incurred and payments made prior to the receipt of goods or services to be used in research and development are capitalized until the goods or services are received. We track direct costs by stage of program, clinical or preclinical. However, we do not track indirect costs on a program specific or stage of program basis because these costs are deployed across multiple programs and, as such, are not separately classified.

As described above, Arena charges us for many of the expenses associated with these research and development functions under the Services Agreement. We expect to assume responsibility from Arena for these research and development functions as we continue to grow our business and build our internal research and development capabilities. We expect that our research and development expenses will increase substantially for the foreseeable future as we continue the development of our product candidates, particularly as product candidates in later stages of development generally have higher development costs than those in earlier stages of development. We cannot determine with certainty the timing of initiation, the duration or the completion costs of future clinical trials and preclinical studies of our product candidates due to the inherently unpredictable nature of clinical and preclinical development. Clinical and preclinical development timelines, the probability of success and development costs can differ materially from expectations.

We anticipate that we will make determinations as to which product candidates and development programs to pursue and how much funding to direct to each product candidate or program on an ongoing basis in response

to the results of ongoing and future preclinical studies and clinical trials, regulatory developments and our ongoing assessments as to each product candidate's commercial potential. We will need to raise substantial additional capital in the future. In addition, we cannot forecast which product candidates may be subject to future collaborations, when such arrangements will be secured, if at all, and to what degree such arrangements would affect our development plans and capital requirements.

Our research and development expenses may vary significantly based on a variety of factors, such as:

- the scope, rate of progress, expense and results of our preclinical development activities;
- the phase of development of our product candidates;
- per patient clinical trial costs;
- the number of clinical trials required for approval;
- the number of sites included in our ongoing and planned clinical trials;
- the number of patients that participate in our ongoing and planned clinical trials;
- the countries in which our clinical trials are conducted;
- uncertainties in clinical trial design and patient enrollment or drop out or discontinuation rates, particularly in light of the current COVID-19 pandemic environment;
- potential additional safety monitoring requested by regulatory agencies;
- the duration of patient participation in our ongoing and planned clinical trials and follow-up;
- the efficacy and safety profile of our product candidates;
- the timing, receipt, and terms of any approvals from applicable regulatory authorities including the FDA and foreign regulatory authorities;
- significant and changing government regulation and regulatory guidance;
- potential additional trials requested by regulatory agencies;
- the cost and timing of manufacturing our product candidates;
- establishing clinical and commercial manufacturing capabilities or making arrangements with third-party manufacturers in order to ensure that we or our third-party manufacturers are able to make product successfully;
- the extent to which we establish additional strategic collaborations or other arrangements;
- the impact of any business interruptions to our operations or to those of the third parties with whom we work, including Arena, particularly in light of the current COVID-19 pandemic environment; and
- maintaining a continued acceptable safety profile of our product candidates following approval, if any, of our product candidates.

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

General and Administrative

General and administrative expenses consist primarily of personnel-related costs, which include salaries, payroll taxes, employee benefits, and other employee-related costs, including stock-based compensation, for personnel in executive, finance and other administrative functions. Other significant costs include legal fees relating to corporate matters, professional fees for accounting and consulting services and facility-related costs.

[Table of Contents](#)

We expect that our general and administrative expenses will increase substantially for the foreseeable future to support our increased research and development activities and increased costs of operating as a public company and in building our internal resources to become less reliant on Arena. These increased costs will include increased expenses related to audit, legal, regulatory and tax-related services associated with maintaining compliance with exchange listing and SEC requirements, director and officer insurance premiums and investor and public relations costs associated with operating as a public company.

Results of Operations

Period from January 3, 2020 (Inception) through September 30, 2020

The following table summarizes our results of operations for the period from January 3, 2020 (inception) through September 30, 2020:

	Period from January 3, 2020 (Inception) through September 30, 2020 (in thousands)
Operating expenses:	
Research and development (includes related party amounts of \$559)	\$ 2,462
General and administrative (includes related party amounts of \$1,100)	1,829
Total operating expenses	4,291
Loss from operations	(4,291)
Net loss and comprehensive loss	\$ (4,291)

Research and Development Expenses

The following table summarizes our research and development expenses for the period from January 3, 2020 (inception) through September 30, 2020:

	Period from January 3, 2020 (Inception) through September 30, 2020 (in thousands)
Direct costs:	
LP352	\$ 363
Preclinical programs	1,670
Indirect costs:	
Personnel-related	429
Total research and development expenses	\$ 2,462

Research and development expenses were \$2.5 million for the period from January 3, 2020 (inception) through September 30, 2020. These included \$1.7 million of preclinical and sponsored research expenses primarily related to advancing certain pipeline programs including LP143 and LP659, into the middle stages of preclinical development, \$0.4 million in personnel-related expense and \$0.4 related to clinical trial expense for LP352.

General and Administrative Expenses

General and administrative expenses were \$1.8 million for the period from January 3, 2020 (inception) through September 30, 2020. These expenses included \$1.4 million of personnel-related costs and \$0.4 million of professional services related fees.

Liquidity and Capital Resources

Sources of Liquidity

We have incurred net losses and negative cash flows from operations since our inception and we expect to continue to incur significant and increasing net losses for the foreseeable future. We have principally financed our operations to date through capital contributions from Arena and a private placement of our Series A preferred stock. As of September 30, 2020, we had cash of \$0.2 million. In October 2020, we received aggregate gross proceeds of \$56.0 million from the sale and issuance of 5,600,000 shares of our Series A preferred stock. We do not have any products approved for sale, we have not generated any revenue from the sale of products, and our ability to generate product revenue sufficient to achieve profitability will depend on the successful development and eventual commercialization of one or more of our current or future product candidates.

Future Funding Requirements

Based on our current operating plan, we estimate that our existing cash, together with the anticipated net proceeds from this offering, will be sufficient to fund our operating expenses and capital expenditure requirements through at least the next _____ months. However, our forecast of the period of time through which our financial resources will be adequate to support our operations is a forward-looking statement that involves risks and uncertainties, and actual results could vary materially. We have based this estimate on assumptions that may prove to be wrong, and we could deplete our capital resources sooner than we expect. Additionally, the process of testing product candidates in clinical trials is costly, and the timing of progress and expenses in these trials is uncertain.

Our future capital requirements will depend on many factors, including:

- the type, number, scope, progress, expansions, results, costs and timing of, our preclinical studies and clinical trials for our current and any future product candidates and the potential indications which we are pursuing or may choose to pursue in the future;
- the outcome, timing and costs of regulatory review of our product candidates;
- the costs and timing of manufacturing for our product candidates, including commercial manufacturing;
- our efforts to enhance operational systems and hire additional personnel to satisfy our obligations as a public company, including enhanced internal controls over financial reporting;
- the costs associated with hiring additional personnel and consultants as our preclinical and clinical activities increase;
- the timing and amount of the payments we must make under the Arena License Agreement;
- the costs and timing of establishing or securing sales and marketing and distribution capabilities, whether alone or with third parties, to commercialize product candidates for which we may obtain regulatory approval, if any;
- our ability to achieve sufficient market acceptance, coverage and adequate reimbursement from third- party payors and adequate market share and revenue for any approved products;
- patients' willingness to pay out-of-pocket for any approved products in the absence of coverage and/or adequate reimbursement from third-party payors;
- the terms and timing of establishing and maintaining collaborations, licenses and other similar arrangements;
- the costs of obtaining, expanding, maintaining and enforcing our patent and other intellectual property rights;
- costs associated with any product candidates, products or technologies that we may in-license or acquire; and

[Table of Contents](#)

- if we experience any delays or encounter any issues with any of the above, including the risk of each of which may be exacerbated by the ongoing COVID-19 pandemic.

Developing pharmaceutical products, including conducting preclinical studies and clinical trials, is a time-consuming, expensive and uncertain process that takes years to complete, and we may never generate the necessary data or results required to obtain marketing approval for any product candidates or generate revenue from the sale of any product candidate for which we may obtain marketing approval. In addition, our product candidates, if approved, may not achieve commercial success. Our commercial revenues, if any, will be derived from sales of products that we do not expect to be commercially available for at least several years, if ever. As a result, we will need substantial additional financing to support our continuing operations and further the development of and commercialize our product candidates.

Until such time as we can generate significant revenue from sales of our product candidates, if ever, we expect to finance our cash needs through public or private equity or debt financings or other capital sources, including potential collaborations, licenses and other similar arrangements. However, we may be unable to raise additional funds or enter into such other arrangements when needed on favorable terms or at all. Our ability to raise additional funds may be adversely impacted by potential worsening global economic conditions and the recent disruptions to, and volatility in, the credit and financial markets in the United States and worldwide resulting from the ongoing COVID-19 pandemic and otherwise. To the extent that we raise additional capital through the sale of equity or convertible debt securities, the ownership interest of our stockholders will be or could be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect the rights of our common stockholders. Debt financing and equity 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 funds through collaborations, or other similar arrangements with third parties, we may have to relinquish valuable rights to our product candidates, future revenue streams or research programs or may have to grant licenses on terms that may not be favorable to us and/or may reduce the value of our common stock. If we are unable to raise additional funds through equity or debt financings 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 our product candidates even if we would otherwise prefer to develop and market such product candidates ourselves.

Cash Flows

The following table sets forth a summary of our cash flows for the period from January 3, 2020 (inception) through September 30, 2020:

	Period from January 3, 2020 (Inception) through September 30, 2020 (in thousands)
Cash used in operating activities	\$ (1,983)
Cash provided by financing activities	2,200
Net increase in cash	\$ 217

Operating Activities

Net cash used in operating activities was \$2.0 million for the period from January 3, 2020 (inception) through September 30, 2020 and was primarily due to our net loss of \$4.3 million, adjusted for stock-based compensation expense of \$1.1 million and a \$1.2 million change in our operating assets and liabilities.

[Table of Contents](#)

Financing Activities

Net cash provided by financing activities was \$2.2 million for the period from January 3, 2020 (inception) through September 30, 2020 and was from the capital contributions from Arena.

Contractual Obligations and Commitments

We lease certain office space in San Diego, California under a month to month lease with base monthly rent payment of \$1,000. We have not yet determined whether we will stay in the lease, enter into a lease for other office space, or take an alternative approach to our office space needs in the future.

Pursuant to the Arena License Agreement, we are obligated to make certain royalty payments. These payment obligations are contingent upon future events, such as our generating product sales. We are currently unable to estimate the timing or likelihood of generating future product sales. See the subsection entitled “—Agreements with Arena—License Agreement” above.

In addition, we enter into contracts in the normal course of business with CROs, clinical supply manufacturers and with vendors for preclinical studies and other services and products for operating purposes. These contracts do not contain any minimum purchase commitments and generally provide for termination after a notice period, and, therefore, are not considered long-term contractual obligations. Payments due upon cancellation consist only of payments for services provided and expenses incurred up to the date of cancellation.

Off-Balance Sheet Arrangements

During the period presented we did not have, nor do we currently have, any off-balance sheet arrangements as defined under the rules and regulations of the SEC.

Critical Accounting Policies and Significant Judgments and Estimates

Our financial statements are prepared in accordance with generally accepted accounting principles in the United States. The preparation of our financial statements and related disclosures requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, costs and expenses, and the disclosure of contingent assets and liabilities in our financial statements. We base our estimates on historical experience, known trends and events and various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. We evaluate our estimates and assumptions on a periodic basis. Our actual results may differ from these estimates.

While our significant accounting policies are described in more detail in the notes to our financial statements appearing elsewhere in this prospectus, we believe that the following accounting policies are critical to understanding our historical and future performance, as the policies relate to the more significant areas involving management’s judgments and estimates used in the preparation of our financial statements.

Accrued Research and Development Expenses

As part of the process of preparing our financial statements, we are required to estimate our accrued research and development expenses as of each balance sheet date. This process involves reviewing open contracts and purchase orders, communicating with our personnel to identify services that have been performed on our behalf and estimating the level of service performed and the associated cost incurred for the service when we have not yet been invoiced or otherwise notified of actual costs. The majority of our service providers invoice us in arrears for services performed, based on a pre-determined schedule or when contractual milestones are met, but some require advance payments. We make estimates of our accrued expenses as of each balance sheet date in

the financial statements based on facts and circumstances known to us at that time. If timelines or contracts are modified based upon changes in the protocol or scope of work to be performed, we modify our estimates and accruals accordingly on a prospective basis.

We base our expenses related to external research and development services on our estimates of the services received and efforts expended pursuant to quotes and contracts with vendors that conduct research and development on our behalf. The financial terms of these agreements are subject to negotiation, vary from contract to contract and may result in uneven payment flows. There may be instances in which payments made to our vendors will exceed the level of services provided and result in a prepayment of the expense. In accruing service fees, we estimate the time period over which services will be performed and the level of effort to be expended in each period. If the actual timing of the performance of services or the level of effort varies from the estimate, we adjust the accrual or the amount of prepaid expenses accordingly.

Although we do not expect our estimates to be materially different from amounts actually incurred, our understanding of the status and timing of services performed relative to the actual status and timing of services performed may vary and may result in reporting amounts that are too high or too low in any particular period. To date, there have not been any material adjustments to our prior estimates of accrued research and development expenses.

Stock-Based Compensation

Prior to our Series A preferred stock financing in October 2020, we did not have our own equity incentive plan and one of our employees was granted options during the period from January 3, 2020 (inception) through September 30, 2020 under Arena's 2017 Amended and Restated Long-Term Incentive Plan (Arena 2017 LTIP). We therefore used Arena's Black-Scholes fair value, and underlying inputs and assumptions, to recognize stock-based compensation expense for this grant. Stock-based awards were measured at fair value and recognized over the requisite service period. Arena estimated the fair value of each stock option on the date of grant using the Black-Scholes option pricing model, which requires the input of subjective assumptions, including price volatility of the underlying stock, risk-free interest rate, dividend yield, and expected life of the option. Expected volatility is computed using historical volatility for a period equal to the expected term. The expected term of options is determined based on historical experience of similar awards, giving consideration to the contractual terms of the stock-based awards, vesting schedules and post-vesting terminations. The risk-free interest rates are based on the U.S. Treasury yield curve, with a remaining term approximately equal to the expected term used in the option pricing model. We account for the forfeitures in the period they occur. See Note 6 to our financial statements included elsewhere in this prospectus for information concerning certain of the specific assumptions Arena used in applying the Black-Scholes option pricing model to determine the estimated fair value of these stock options granted for the period from January 3, 2020 (inception) through September 30, 2020. We recorded stock-based compensation expense of \$1.1 million during this period on our statement of operations and comprehensive loss.

Following the consummation of our Series A preferred stock financing and the adoption of our 2020 Equity Incentive Plan (2020 Plan) in October 2020, we granted certain restricted stock awards and stock options to certain of our employees and consultants under the 2020 Plan. See Note 10 to our financial statements included elsewhere in this prospectus for additional information concerning these grants. We measure stock options and other stock-based awards granted to directors, employees and non-employees based on their fair value on the date of the grant and recognize the corresponding compensation expense of those awards over the requisite service period, which is generally the vesting period of the respective award. We have only issued stock options and restricted share awards with service-based vesting conditions and record the expense for these awards using the straight-line method. We determine the fair value of restricted stock awards granted based on the fair value of our common stock. We account for forfeitures in the period they occur.

We estimate the fair value of each stock option grant using the Black-Scholes option pricing model, which uses as inputs the following assumptions:

- *Fair Value of Common Stock*—See the subsection entitled “—Determination of Fair Value of Common Stock” below.
- *Expected Term*—The expected term represents the period that the stock-based awards are expected to be outstanding. We use the simplified method to determine the expected term, which is based on the average of the time-to-vesting and the contractual life of the options.
- *Expected Volatility*—Because we have been privately held and do not have any trading history for our common stock, the expected volatility was estimated based on the average volatility for comparable publicly traded biotechnology companies over a period equal to the expected term of the stock option grants. The comparable companies were chosen based on the similar size, stage in life cycle or area of specialty. We will continue to apply this process until a sufficient amount of historical information regarding the volatility of our own stock price becomes available.
- *Risk-Free Interest Rate*—The risk-free interest rate is based on the U.S. Treasury zero coupon issues in effect at the time of grant for periods corresponding with the expected term of the awards.
- *Dividend Yield*—We have never paid dividends on our common stock and have no plans to pay dividends on our common stock. Therefore, we used an expected dividend yield of zero.

We expect to continue to grant stock options and other stock-based awards in the future, and to the extent that we do, our stock-based compensation expense recognized in future periods will increase.

Determination of Fair Value of Common Stock

As there has been no public market for our common stock to date, the estimated fair value of our common stock has been determined by our board of directors as of the date of each option grant, with input from management, considering our most recently available third-party valuations of common stock and our board of directors’ assessment of additional objective and subjective factors that it believed were relevant and which may have changed from the date of the most recent valuation through the date of the grant. Historically, these independent third-party valuations of our equity instruments were performed contemporaneously with identified value inflection points. These third-party valuations were performed in accordance with the guidance outlined in the American Institute of Certified Public Accountants’ Accounting and Valuation Guide, *Valuation of Privately-Held-Company Equity Securities Issued as Compensation* (Practice Aid). The Practice Aid identifies various available methods for allocating the enterprise value across classes of series of capital stock in determining the fair value of our common stock at each valuation date.

For our valuation performed prior to November 2020, in accordance with the Practice Aid, we determined the Option Pricing Method (OPM) was the most appropriate method for determining the fair value of our common stock based on our stage of development and other relevant factors. This valuation was based on the OPM Backsolve methodology. The OPM treats common stock and preferred stock as call options on the total equity value of a company, with exercise prices based on the value thresholds at which the allocation among the various holders of a company’s securities changes. Under this method, the common stock has value if the funds available for distribution to stockholders exceed the value of the liquidation preferences at the time of a liquidity event, such as a strategic sale or merger. The common stock is modeled as a call option on the underlying equity value at a predetermined exercise price. In the model, the exercise price is based on a comparison with the total equity value rather than, as in the case of a regular option, a comparison with a per share stock price. Thus, common stock is considered to be a call option with a claim on the enterprise at an exercise price equal to the remaining value immediately after the preferred stock liquidation preference is paid. The OPM uses the Black-Scholes option pricing model to price the call options. This model defines the fair value of securities as functions of the current fair value of a company and uses assumptions such as the anticipated timing of a potential liquidity event and the estimated volatility of the equity securities.

For our valuations performed after November 2020, in accordance with the Practice Aid, we determined the hybrid method of the OPM and Probability-Weighted Expected Return Method (PWERM) was the most appropriate method for determining the fair value of our common stock based on our stage of development and other relevant factors. Under the PWERM methodology, the fair value of the common stock is estimated based upon an analysis of future values for the company, assuming various outcomes. The common stock value is based on the probability weighted present value of expected future investment returns considering each of the possible outcomes available as well as the rights of each class of stock. The future value of the common stock under each outcome is discounted back to the valuation date at an appropriate risk adjusted discount rate and probability to arrive at an indication of the value for common stock. The hybrid method is a PWERM, where the equity value in one or more scenarios is calculated using an OPM. The PWERM is a scenario-based methodology that estimates the fair value of common stock based upon an analysis of future values for the company, assuming various outcomes. The common stock value is based on the probability-weighted present value of expected future investment returns considering each of the possible outcomes available as well as the rights of each class of stock. The future value of the common stock under each outcome is discounted back to the valuation date at an appropriate risk-adjusted discount rate and probability weighted to arrive at an indication of value for the common stock.

In addition to considering the results of these independent third-party valuations, our board of directors considered various objective and subjective factors to determine the fair value of our common stock as of each grant date, including:

- our stage of development and material risks related to our business;
- the progress of our research and development programs, including the status and results of preclinical studies and clinical trials for our product candidates;
- our business conditions and projections;
- our financial position and our historical and forecasted performance and operating results;
- the lack of an active public market for our common stock and our preferred stock;
- the prices of our preferred stock sold to or exchanged between outside investors in arm's length transactions and the rights, preferences, and privileges of our preferred stock as compared to those of our common stock, including liquidation preferences of our preferred stock;
- the analysis of initial public offerings and the market performance of similar companies in the biopharmaceutical industry;
- the likelihood of achieving a liquidity event, such as an initial public offering or sale of our company in light of prevailing market conditions;
- the hiring of key personnel and the experience of management;
- trends and developments in our industry; and
- external market conditions affecting the biopharmaceutical industry and trends within the biopharmaceutical industry.

Following the closing of this offering, our board of directors will determine the fair market value of our common stock based on its closing price as reported on the date of grant on the primary stock exchange on which our common stock is traded.

Recently Issued Accounting Pronouncements

See Note 2 to our financial statements included elsewhere in this prospectus for recently issued accounting pronouncements.

Quantitative and Qualitative Disclosures About Market Risk

Interest Rate Risk

As of September 30, 2020, our cash consists of cash in readily available checking accounts. We do not hold any short-term investments. As a result, the fair value of our portfolio is relatively insensitive to interest rate changes. As of September 30, 2020, we had no debt outstanding and are therefore not exposed to interest rate risk with respect to debt. We believe a hypothetical 100 basis point increase or decrease in interest rates during the period presented would not have had a material impact on our financial results.

Foreign Currency Risk

All of our employees and our operations are currently located in the United States and our expenses are generally denominated in U.S. dollars. However, we have entered into a limited number of contracts with vendors for research and development services that are denominated in foreign currencies. We are subject to foreign currency transaction gains or losses on our contracts denominated in foreign currencies. To date, foreign currency transaction gains and losses have not been material to our financial statements, and we have not had a formal hedging program with respect to foreign currency. We believe a hypothetical 100 basis point increase or decrease in exchange rates during the period presented would not have had a material impact on our financial results.

Effects of Inflation

Inflation generally affects us by increasing our cost of labor and clinical trial costs. We do not believe that inflation and changing prices had a significant impact on our results of operations for the period presented herein.

Emerging Growth Company and Smaller Reporting Company Status

We are an “emerging growth company” under the JOBS Act, and as such, we can take advantage of an extended transition period for complying with new or revised accounting standards. This provision allows an emerging growth company to delay the adoption of accounting standards that have different effective dates for public and private companies until those standards would otherwise apply to private companies. We have elected to avail ourselves of this exemption from new or revised accounting standards, and therefore we will not be subject to the same requirements to adopt new or revised accounting standards as other public companies that are not emerging growth companies.

We will cease to be an emerging growth company prior to the end of such five-year period if certain earlier events occur, including if we become a “large accelerated filer” as defined in Rule 12b-2 under the Securities Exchange Act of 1934, as amended (Exchange Act) our annual gross revenues exceed \$1.07 billion or we issue more than \$1.0 billion of non-convertible debt in any three-year period. In particular, in this prospectus, we have not included all of the executive compensation related information that would be required if we were not an emerging growth company, and we may elect to take advantage of other reduced reporting requirements in future filings.

We are also a “smaller reporting company” as defined in the Exchange Act. We may continue to be a smaller reporting company even after we are no longer an emerging growth company. We may take advantage of certain of the scaled disclosures available to smaller reporting companies and will be able to take advantage of these scaled disclosures for so long as our voting and non-voting common stock held by non-affiliates is less than \$250.0 million measured on the last business day of our second fiscal quarter, or our annual revenue is less than \$100.0 million during the most recently completed fiscal year and our voting and non-voting common stock held by non-affiliates is less than \$700.0 million measured on the last business day of our second fiscal quarter.

BUSINESS

Overview

We are a clinical-stage biopharmaceutical company focused on developing novel, transformative medicines for neurological diseases. We were formed in January 2020 by Arena Pharmaceuticals, Inc. (Arena) to advance a portfolio of centrally acting product candidates designed to be highly selective for specific G protein-coupled receptors (GPCRs). Our small molecule product candidates were discovered out of the same platform at Arena that represents a culmination of more than 20 years of GPCR research. Our pipeline includes:

- LP352, an oral, centrally acting, highly selective 5-hydroxytryptamine 2c receptor subtype (5-HT_{2c}) superagonist, that we plan to advance in a multiple-ascending dose (MAD) portion of a Phase 1 clinical trial in , and expect to initiate a Phase 1b/2a clinical trial for the treatment of developmental and epileptic encephalopathies (DEEs), including Dravet syndrome and Lennox-Gastaut syndrome, among others, in ;
- LP143, a centrally acting, highly selective, full cannabinoid type 2 receptor (CB₂) agonist in investigational new drug application (IND)-enabling studies for neurodegenerative diseases associated with neuroinflammation caused by microglial activation, including amyotrophic lateral sclerosis (ALS); and
- LP659, a centrally acting, highly selective sphingosine-1-phosphate (S1P) receptor subtypes 1 and 5 (S1P_{1,5}) modulator in IND-enabling studies for central nervous system (CNS) neuroinflammatory diseases.

We also have additional earlier discovery stage compounds.

LP352, our most advanced product candidate, is an oral, centrally acting, highly selective 5-HT_{2c} superagonist with negligible observed impact on 5-HT_{2a} and 5-HT_{2b} receptor subtypes in our preclinical studies to date. 5-HT_{2a} and 5-HT_{2b} receptor subtypes have been known to be associated with significant adverse side effects. LP352 has the potential to be a clinically differentiated 5-HT_{2c} superagonist for patients with DEEs, a group of severe early-childhood onset epilepsies characterized by refractory seizures and developmental delay or regression. Certain compounds in the 5-HT_{2c} agonist class have been shown to produce clinical benefit in epilepsy patients, although the side effect profiles of available non-selective 5-HT₂ therapies may limit their use due to their activity on receptor subtypes 5-HT_{2a} and 5-HT_{2b}. Fenfluramine, marketed as FINTEPLA, a non-specific 5-HT₂ agonist, was recently approved for the treatment of seizures associated with Dravet syndrome by the U.S. Food and Drug Administration (FDA). Fenfluramine has been associated with significant side effects and FINTEPLA has a Risk Evaluation and Mitigation Strategy (REMS) program requirement and a boxed warning. Another 5-HT_{2c} agonist, lorcaserin, is also under evaluation for its potential to reduce seizures in patients with Dravet syndrome and refractory epilepsies. Lorcaserin was discovered by Arena and approved by the FDA for chronic weight management, marketed as BELVIQ by Eisai Inc. and Eisai Co. Ltd. (collectively, Eisai), and withdrawn from the market at the request of the FDA based on a change in the FDA's risk-benefit assessment for the approved indication. However, the FDA authorized an expanded access program for patients with Dravet syndrome to continue to receive lorcaserin. LP352 was designed and developed by Arena to be the next generation to lorcaserin, with the goal of being a safer and more effective 5-HT_{2c} agonist. We believe LP352's high selectivity and novel chemistry gives it the potential to reduce seizures in DEE patients and overcome the known or perceived safety limitations of available drugs in the 5-HT₂ class. In the completed single-ascending dose (SAD) portion of the Phase 1 clinical trial, there were no unexpected adverse events (AEs) observed and no cases of serious adverse events (SAEs) reported.

We are also developing LP143, a selective CB₂ agonist, and LP659, a selective S1P_{1,5} receptor agonist, based on their novel chemistry, selectivity for GPCRs, and high brain-to-plasma ratio. We believe these compounds have the potential to address microglial neuroinflammation, which may drive disease progression in






Table of Contents

a range of neurodegenerative diseases. LP143 and LP659 were designed by Arena to have more optimized pharmacology and pharmacokinetics (PK) for their intended GPCR targets, including GPCR subtypes, compared to other known compounds. We believe this selectivity and specificity has the potential to result in superior profiles in the clinic compared to drugs that may not fully engage the intended GPCR target, may cause off-target activity, or may be associated with other undesirable effects. LP143 is a centrally acting, highly selective, full CB2 agonist being developed for the treatment of neurodegenerative diseases associated with neuroinflammation caused by microglial activation, including ALS. CB2 agonism has been shown in studies to regulate neuroinflammatory processes, including microglial activation, reducing the amount of damage characteristic of degeneration. LP659 is a centrally acting, highly selective S1P1,5 receptor modulator for which aberrant modulation has been shown to be involved in a wide range of neurodegenerative diseases.

Our Pipeline

Our product candidates are targeted towards specific GPCRs. GPCRs mediate cell-to-cell communication in humans, and approximately 35% of prescription drugs currently on the market target GPCRs, making GPCRs a highly validated class of drug targets. Our highly selective GPCR product candidates are designed to increase the likelihood of the desired pharmacology and PK and minimize the risk of off-target effects.

The following table provides an overview of our current programs:

Program	Mechanism of Action	Therapeutic Area	IND-Enabling	Phase 1	Phase 2	Phase 3	Anticipated Milestones	Rights*
LP352	5-HT _{2c} Superagonist	DEEs and other refractory epilepsies					Ph 1 MAD	
LP143	CB2 Agonist	ALS and other neuroinflammatory disorders					IND	
LP659	S1P Receptor Modulator	Multiple neuroinflammatory disorders					IND	

* We hold worldwide rights to our product candidates in our therapeutic areas of focus for such compounds through the Arena License Agreement, which is defined and described below.

LP352

We are developing LP352, an oral, centrally acting, highly selective 5-HT_{2c} superagonist for DEEs and other epileptic disorders. DEEs are a group of severe early-childhood onset epilepsies characterized by refractory seizures and developmental delay or regression. These diseases are often progressive and resistant to treatment. DEEs encompass a diverse range of etiologies and includes Dravet syndrome and Lennox-Gastaut syndrome, among others. There are an estimated 21,000 patients with Dravet syndrome and 47,000 patients with Lennox-Gastaut syndrome in the United States. There are an estimated 21,000 patients with Dravet syndrome in the European Union (EU). The number of patients with Lennox-Gastaut syndrome in the EU is less known. LP352 selectively targets the 5-HT_{2c} receptor, which has been shown to upregulate the release of gamma-aminobutyric acid (GABA), a principal neurotransmitter in the brain. This release of GABA increases the threshold for neuronal hyperexcitability, and decreases the likelihood of seizure occurrences. We believe LP352 has the mechanistic potential to reduce the frequency of seizures in Dravet syndrome and Lennox-Gastaut syndrome, as well as a broader epilepsy population.

We are currently investigating LP352 in a Phase 1 clinical trial for which the SAD portion has been completed. Initial PK data from the SAD portion of the clinical trial demonstrated dose dependent PK properties

[Table of Contents](#)

with proportional increases in area under the curve (AUC) and maximum serum concentrations (C_{max}). No unexpected AEs were observed and no SAEs were reported. We plan to advance the MAD portion of this clinical trial in , and expect to report topline data for this portion in . We plan to initiate a Phase 1b/2a clinical trial in , pending authorization to proceed under an IND we intend to submit to the FDA's Division of Neurology.

LP143

We are developing LP143, a centrally acting, highly selective, full CB2 agonist for neurodegenerative diseases associated with neuroinflammation caused by microglial activation. CB2 agonism has been shown in preclinical studies to regulate neuroinflammatory processes, reducing the neuronal damage characteristic of degeneration. We believe there is a strong rationale for CB2 agonism in neurodegenerative diseases, given increased CB2 expression in patients with these diseases as well as results from animal models. We see potential for a selective CB2 agonist to treat a range of neurodegenerative diseases. LP143, through its selectivity for CB2, versus the cannabinoid type 1 receptor (CB1), was designed to minimize the risk of psychoactive AEs associated with CB1 activation. Our initial focus is on ALS. Most ALS patients experience rapid disease progression and poor prognosis, with paralysis and death seen within a span of two to five years. Preclinical data have demonstrated the benefit of CB2 agonism in a mouse model of ALS, with treated mice demonstrating delays in loss of motor function and improved survival. In preclinical studies, LP143 has demonstrated high potency and selectivity, 1,000-fold selectivity for CB2 over CB1, sustained activity over the duration of treatment, and favorable blood-brain-barrier penetration. LP143 is currently in IND-enabling studies and we anticipate submitting an IND to the FDA in .

LP659

We are developing LP659, a centrally acting, highly selective S1P_{1,5} receptor modulator for neurodegenerative diseases. LP659 was designed for optimized pharmacology, PK and engagement of S1P_{1,5}, which may lead to improved efficacy and safety. With the selective targeting of S1P_{1,5}, LP659 was designed to be a potent and selective small molecule S1P_{1,5} receptor modulator that reduces the severity of disease and potentially avoids the negative effects connected to the receptor subtypes 2 and 3, which may be associated with more serious, off-target cardiac, pulmonary, and cancer-related effects. Aberrant S1P receptor modulation has been shown to be involved in a wide range of neurodegenerative diseases, including multiple sclerosis, lupus, Parkinson's disease and Alzheimer's disease. Preclinical data demonstrated an initial dose-dependent decrease in disease progression over 17 days in a mouse model of demyelinating disease. LP659 rapidly reduced circulating lymphocytes, which returned to baseline after its clearance. We believe LP659 has high oral bioavailability with a direct impact on CNS glial cell S1P receptors. LP659 is currently in IND-enabling studies and we anticipate submitting an IND to the FDA in .

Our Company History and Team

We were established in January 2020 as Arena Neuroscience, Inc., a wholly owned subsidiary of Arena, based in San Diego, California. We changed our name to Longboard Pharmaceuticals, Inc. and launched as an independent company in October 2020. Building on Arena's 20-year history in discovering, developing and optimizing GPCR therapies, we believe we are well positioned to execute our clinical development programs. We are initially focused on developing LP352, LP143 and LP659, which Arena designed to have distinct chemistry and therapeutic profiles from Arena's other product candidates with similar mechanisms of actions.

Arena developed lorcaserin as a therapeutic for weight management. LP352 was designed to be more specific and selective on 5-HT_{2c} over 5-HT_{2a} and 5-HT_{2b} than lorcaserin and other 5-HT_{2c} agonists. LP352 was initially licensed to Outpost Medicine, LLC and OPM2 Limited (collectively, Outpost) by Arena for development in stress urinary incontinence, however, the rights were returned to Arena after Outpost made a strategic decision that this was no longer an attractive disease area opportunity.

Arena focused on discovering compounds to target the CB2 and S1P receptors. Olorinab was designed to be an oral peripherally active, highly selective, full agonist of CB2, which is in a Phase 2b clinical study for abdominal pain in irritable bowel syndrome, while LP143 was designed to be a centrally acting, highly selective, full agonist of CB2. Similarly, LP659 was designed to be a centrally acting, highly selective S1P_{1,5} receptor modulator with greater brain penetration than existing therapies.

In October 2020, we entered into a License Agreement (Arena License Agreement) with Arena, under which we have exclusive rights to develop our product candidates for neurological disease indications. In addition to LP352, LP143 and LP659, we plan to continue to identify and develop other clinically differentiated product candidates for neurological diseases with high unmet medical need.

In addition, in October 2020, we purchased the right to receive all milestone payments, royalties, interest and other payments relating to net sales of lorcaserin owed or otherwise payable by Eisai, pursuant to a Royalty Purchase Agreement with Arena and 356 Royalty Inc., a wholly owned subsidiary of Arena. Lorcaserin is currently in a Phase 3 clinical trial for Dravet syndrome.

We have assembled an executive team that is highly experienced in small-molecule drug discovery and clinical development. Kevin Lind, our President and Chief Executive Officer, previously served as Executive Vice President and Chief Financial Officer at Arena. Mr. Lind joined Arena in 2016 as part of a new management team focused on redeploying Arena's resources to develop its novel clinical programs. Philip Perera, M.D., our Chief Medical Officer, previously served as the Chief Medical Officer of Jazz Pharmaceuticals, Inc., consulting Chief Medical Officer and Clinical Lead for Abcentra LLC and as a senior medical consultant to Sage Therapeutics, Inc. and ConSynance Therapeutics.

In October 2020, we completed a \$56.0 million private placement of our Series A preferred stock, with participation by Arena, Cormorant Asset Management, Farallon Capital Management, HBM Healthcare Investments, Highside Capital Management and T. Rowe Price Associates.

Our Strategy

Our goal is to develop therapies targeting well-characterized receptor pathways with optimized pharmacology and PK properties to transform the lives of patients with neurological diseases, initially focused on rare neurological diseases. Key elements of our strategy to achieve this goal include:

- **Advance our lead program LP352 through clinical development and approval in DEEs.** LP352, our most advanced program, is a 5-HT_{2c} superagonist currently in a Phase 1 clinical trial for the treatment of DEEs, including Dravet syndrome and Lennox-Gastaut syndrome. Existing treatment options for these rare neurological diseases have significant limitations, and, if approved, we believe LP352 would represent a therapeutic advancement for patients. The SAD portion of the Phase 1 clinical trial has been completed and we plan to advance the MAD portion of this clinical trial in . In addition, we expect data from the MAD portion in and intend to initiate a Phase 1b/2a clinical trial of LP352 in DEEs in .
- **Progress LP143 into clinical development for neurodegenerative diseases associated with neuroinflammation caused by microglial activation.** LP143 is a CB2 agonist currently in IND-enabling studies for neurodegenerative diseases associated with neuroinflammation caused by microglial activation, and we expect to submit an IND to the FDA in . While we believe LP143 has therapeutic potential in a variety of diseases associated with microglial neuroinflammation, we have focused our initial efforts on ALS, a debilitating disease with high unmet medical need.
- **Continue preclinical development of LP659 across a range of CNS diseases associated with neuroinflammation and progress into clinical development.** LP659 is an S1P_{1,5} receptor modulator currently in IND-enabling studies for CNS diseases associated with neuroinflammation and we expect to submit an IND to the FDA in . We believe LP659 may have potential in several diseases associated with neuroinflammation, including multiple sclerosis.

- **Identify additional product candidates and expand current candidates into additional neurological diseases.** We see potential for our current product candidates to be evaluated in clinical trials outside of their initial indications and will evaluate additional indications to maximize the potential of our pipeline. Our current product focus is on targets that are well characterized in neurological diseases but for which there are limitations with currently available therapies. We also plan to continue to identify and develop additional novel product candidates that align with our focus.
- **Explore strategic collaborations to maximize the value of our product candidates.** We plan to explore collaborations opportunistically to maximize the value of our pipeline. We intend to retain significant economic and commercial rights to our programs in key geographic areas that are core to our long-term strategy.

Our Product Candidates

LP352, an oral, centrally acting, highly selective 5-HT_{2c} superagonist

We are developing LP352, an oral, centrally acting, highly selective 5-HT_{2c} superagonist for DEEs and other epileptic disorders. LP352 is designed to selectively target 5-HT_{2c}, which has been shown to upregulate the release of GABA, a principal inhibitory neurotransmitter in the brain. This release of GABA increases the threshold for neuronal hyperexcitability and decreases the likelihood of seizure occurrence. We believe LP352 has the mechanistic potential to reduce the frequency of seizures in Dravet syndrome and Lennox-Gastaut syndrome as well as a broader epilepsy population. We plan to advance the MAD portion of this clinical trial in _____, and expect to have data for this portion in _____. We plan to initiate a Phase 1b/2a clinical trial in _____, pending authorization to proceed under an IND we intend to submit to the FDA's Division of Neurology.

Background on Epilepsy

Epilepsy covers a broad range of disorders and is characterized by spontaneous and recurrent seizures, or bursts of neuronal hyperactivity. Seizures are caused by a disrupted balance between excitatory and inhibitory signaling at the synaptic level. Excitatory synaptic activity is normally regulated by inhibitory interneurons, but disruptions to this regulatory process can result in hyperexcitability. Common aberrations include mutations to ion channels or neurotransmitter genes or proteins that regulate signaling, such as GABA, and disruptions lead to the signaling aberrations characteristic of epileptic disorders. For example, Dravet syndrome is characterized by mutations in the sodium ion channel, the ion channel critical for the generation and propagation of action potentials in neurons, and which ordinarily plays a crucial role inhibitory signaling.

Overview of the Forms of Epilepsy

Epilepsy spans all age groups and in many cases is debilitating, with a large portion of patients resistant to pharmacologic treatment, underscoring a large unmet need. Epilepsy is currently estimated to affect up to 1.2% percent of the U.S. population or approximately 3.4 million individuals, with roughly 150,000 new cases diagnosed each year. We are initially focused on DEEs, which are a group of severe early childhood-onset epilepsies characterized by refractory seizures and developmental delay or regression and include Dravet syndrome and Lennox-Gastaut syndrome, among others, but the 5-HT_{2c} pathway has been implicated in a broader set of epilepsies.

Dravet Syndrome—Dravet syndrome is an early childhood-onset CNS disease that results in severe epileptic seizures typically occurring within the first year after birth. Prevalence for Dravet syndrome is approximately 1:15,000 in the United States, and 90% of the associated mutations are de novo (not passed from a parent). Mortality rate for Dravet syndrome patients is higher than general epilepsy patients, with a rate of 15-20% by adulthood. The disease is genetically linked, with greater than 85% of cases characterized by mutations in the SCN1A gene. Mutations cause defects in the function of the sodium ion channel. Seizures due to Dravet syndrome are typically difficult to control and require life-long treatment.

Lennox Gastaut Syndrome—Lennox-Gastaut syndrome is a severe form of childhood-onset epilepsy with prevalence of approximately 1:7,000 in the United States. The age of onset is typically between three and five years and affected children typically experience cognitive dysfunction, leading to developmental and behavioral problems. Lennox-Gastaut syndrome is characterized by multiple seizure types, with the most common associated seizures being tonic and atonic seizures. Seizures due to Lennox-Gastaut syndrome are difficult to control and generally require life-long treatment. The pathophysiology of Lennox-Gastaut syndrome is less known than Dravet syndrome.

Some of the epileptic indications where the 5-HT2c pathway has been implicated are shown in the table below:

	Dravet Syndrome	Lennox-Gastaut Syndrome (LGS)	Doose Syndrome (myoclonic astatic epilepsy)	Childhood Absence Epilepsy	Refractory Generalized Clonic-Tonic
Prevalence	21k pts in US (1:15,000 pts)	47K pts in US (1:7,000 pts)	32k pts in US (1:10,000 pts)	15k pts in US (1:22,000 pts)	219k pts in US (1:1,500 pts)
Age of onset	Birth – 1 year	3 – 5 years	18 mon – 6 years	4 – 7 years	5 – 40 years
Clinical Characteristics	<ul style="list-style-type: none">• frequent episodes of prolonged seizures• increased risk of Sudden Unexplained Death in Epilepsy (SUDEP)	<ul style="list-style-type: none">• developmental epileptic encephalopathy• multiple seizure types, cognitive regression, and an abnormal EEG	<ul style="list-style-type: none">• generalized epilepsy syndrome of young children characterized by multiple seizure types• children are developmentally normal before the onset of epilepsy	<ul style="list-style-type: none">• daily seizures characterized by staring spells during which the child is not responsive• may result in learning disabilities and memory loss	<ul style="list-style-type: none">• loss of consciousness & then a scream with stiffening of the body• evolves into clonic jerking followed by postictal sleepiness, confusion, or agitation

Current Treatment Paradigm

DEEs are commonly treated with multiple combinations of antiepileptic drugs (AEDs) though physician preference for administered therapies differs across different epilepsy types. Currently available AEDs have limited long-term efficacy with many patients cycling through multiple lines of treatment to try to optimize efficacy. Non-pharmaceutical therapies for epilepsy patients include a ketogenic diet, vagus nerve stimulation (VNS), and surgery for some patients.

The following table is illustrative of the typical treatment paradigm for DEEs:



Dravet syndrome and Lennox-Gastaut syndrome are two types of epilepsies that are difficult to treat given that most patients are refractory to antiseizure medications. The seizures for a vast majority of these patients remain uncontrolled and patients typically require multiple lines of treatment. In 2018, GW Pharmaceuticals’ Epidiolex (cannabidiol) was approved by the FDA for Dravet syndrome and Lennox-Gastaut syndrome. Zogenix’s FINTEPLA (fenfluramine) was approved for the treatment of seizures associated with Dravet syndrome in patients two years of age and older in June 2020 and is available through a REMS program. The

REMS program restricts prescriptions to prescribers who are enrolled in the FINTEPLA REMS program. Patients must also enroll in the REMS program and comply with ongoing monitoring requirements.

Background on GABA and Neurotransmission

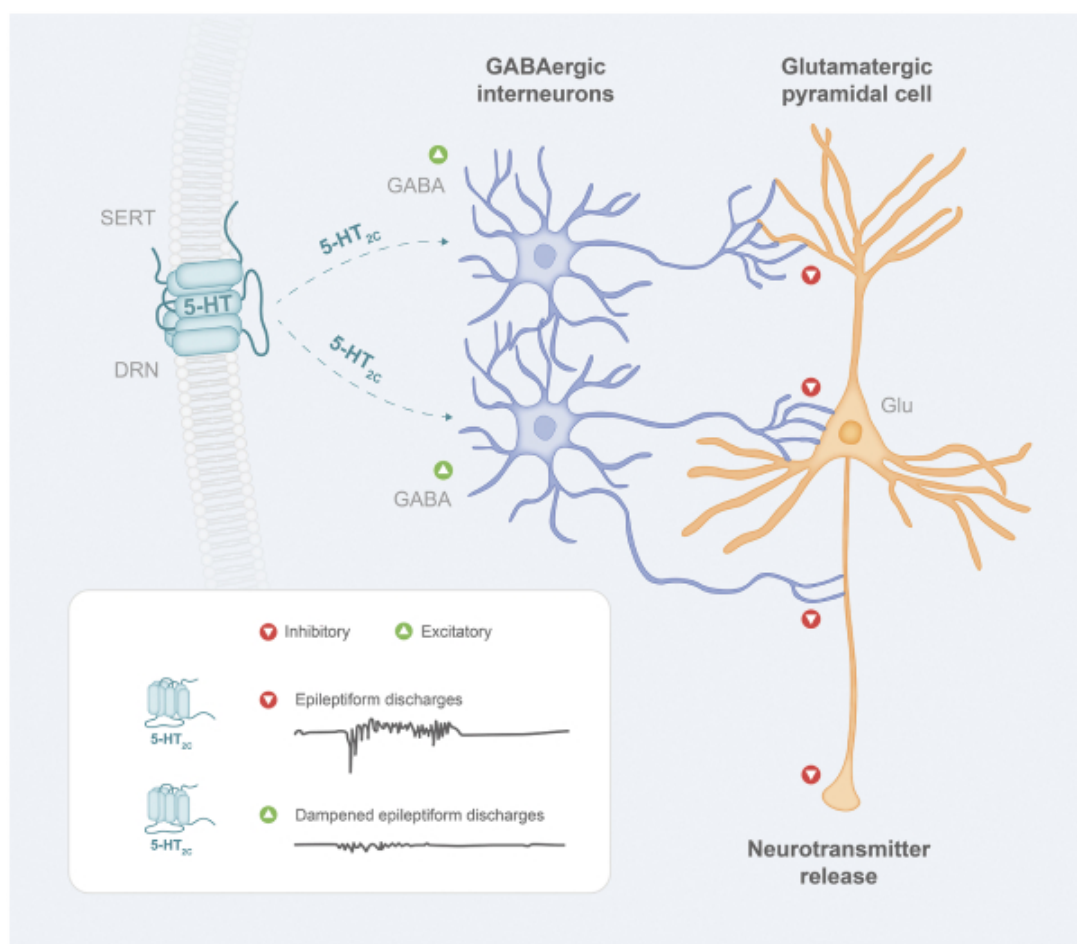
GABA is a principal neurotransmitter in the brain and binds to receptors inside and outside the synaptic gap. GABA plays key roles in neuronal inhibition, and reduction of GABA levels has been shown to result in a decline of this inhibition. Lack of GABA-mediated inhibition subsequently leads to the chronic activation of post-synaptic neurons characteristic of seizures.

5-HT2 Receptors

5-HT receptors, or serotonin receptors, are widely expressed in neural networks. Serotonin plays a key role in modulating neurotransmission, as agents elevating extracellular serotonin levels have been shown to inhibit focal and generalized seizures while agents reducing serotonin levels have been shown to lower the threshold for seizures. To date, 14 receptor subtypes of 5-HT receptors have been characterized and are grouped into seven classes. The two main classes are 5-HT1 and 5-HT2. 5-HT2 receptors are G-coupled membrane proteins that are distinguished by their function of increasing intracellular calcium levels (Ca²⁺) and activation of protein kinase C. Three subtypes exist: 5-HT2a, 5-HT2b and 5-HT2c, with the 5-HT2a and 5-HT2c receptor subtypes primarily expressed in the CNS and 5-HT2b primarily expressed in the peripheral nervous system. All subtypes have been shown to modulate neurotransmission, though the 5-HT2a receptor has been implicated with anxiety and hallucinations, and the 5-HT2b receptor with valvulopathy and pulmonary hypertension.

5-HT2c is one of the many binding sites for serotonin and is expressed on GABAergic, glutamatergic, and dopaminergic neurons. Multiple preclinical studies have suggested that 5-HT2c play an important role in the inhibition of seizures. For example, in a knockout mouse model, mice missing the 5-HT2c were shown to have a lower threshold for seizures and experienced spontaneous convulsions. Preclinical models suggest that activation of 5-HT2c regulates GABA and glutamate pathophysiology seen in seizure disorders. Excitatory glutamate release is directly and indirectly regulated by 5-HT actions on GABA interneurons and pyramidal neurons. Research proposes that neuronal hyperexcitability occurs during the transition to seizure when excitatory glutamatergic activity increases while inhibitory GABAergic synaptic input is weakened. It is thought that 5-HT2c agonists, acting on GABA interneurons, inhibit excitatory glutamatergic activity, thereby decreasing neuronal action potential firing and downstream electrical activity.

This downstream electrical activity is illustrated in the below:



The 5-HT₂ class and 5-HT_{2c} subtype have additionally been shown in the clinic to reduce seizure frequencies.

Fenfluramine—Fenfluramine, a 5-HT₂ agonist with activity on 5-HT_{2a}, 5-HT_{2b} and 5-HT_{2c} receptors, was initially developed as monotherapy treatment for adult obesity as well as in combination with phentermine (fen-phen). Later, however, reports were published documenting cases of cardiac valvulopathy and pulmonary hypertension, causing the program to be pulled from the market in 1997. Zogenix, Inc. more recently began developing fenfluramine for Dravet syndrome, Lennox-Gastaut syndrome, and other rare epilepsies. In June 2020, the FDA approved fenfluramine for the treatment of seizures associated with Dravet syndrome (marketed as FINTEPLA). Approval was based on data from two randomized, double-blinded, placebo-controlled Phase 3 clinical trials, as well as safety data from an open-label extension trial in which patients received FINTEPLA for up to three years. Patients administered the therapy demonstrated significant reductions in monthly convulsive seizure frequency compared to placebo. However, the FDA placed a black box warning in FINTEPLA's label noting an association between serotonergic drugs with 5-HT_{2b} agonist activity, including fenfluramine, and valvular heart disease and pulmonary arterial hypertension. FINTEPLA is available only through a restricted distribution program called the FINTEPLA REMS program, in which prescribers and patients must be enrolled. Cardiac monitoring via echocardiogram is required pretreatment, during treatment and after treatment with FINTEPLA.

Lorcaserin—Lorcaserin, a 5-HT_{2c} agonist, was discovered by Arena and approved by the FDA for weight management, marketed as BELVIQ by Eisai. Lorcaserin was withdrawn from the market at the request of the FDA following the FDA’s analysis of the CAMELLIA-TIMI 61 clinical trial, for which patients in the lorcaserin group demonstrated a numerically higher but not a statistically significantly higher rate of total cancer diagnoses (7.7% vs 7.1% placebo). Based on the results of the clinical trial, the FDA concluded that the drug’s benefits did not outweigh the risks for any identifiable patient population. However, the FDA noted that the cause of cancer occurrences were not certain and that officials could not definitely conclude that lorcaserin contributes to cancer risk. The FDA authorized an expanded access program for patients with Dravet syndrome to continue to receive lorcaserin.

Lorcaserin has demonstrated the potential to reduce seizures in patients with Dravet syndrome and refractory epilepsies. A National Institutes of Health funded study conducted at the University of California, San Francisco showed that several 5-HT receptor modulating compounds, including lorcaserin, reduced seizure-like activity in a zebrafish model of Dravet syndrome. Lorcaserin has been tested in a small study of “off-label” use in five children with Dravet syndrome, for which all patients in the study exhibited some degree of decreased seizure activity. A follow-up retrospective study conducted in 35 lorcaserin-treated refractory epilepsy patients found a 50% reduction in mean monthly frequency of seizures in Lennox-Gastaut syndrome patients (n = 9), a 43% reduction in patients with Dravet syndrome (n = 20), and a 23% reduction in patients with other epilepsies (n = 6). Overall, the study demonstrated a 47.7% median percentage reduction in mean monthly frequency of motor seizures from baseline.

In October 2020, following consultation with the FDA, Eisai Inc. initiated a Phase 3 clinical trial of lorcaserin in patients with Dravet syndrome.

Our Solution

LP352 in Epilepsies

LP352 is an oral, centrally acting, highly selective 5-HT_{2c} superagonist. A superagonist displays higher receptor signaling output than the natural agonist. As a 5-HT_{2c} superagonist, LP352 is designed to modulate GABA inhibition and as a result, suppress the hyperexcitability that is characteristic of seizures. Based on its potential mechanism of action, we believe that LP352 has the potential to reduce the frequency of seizures in Dravet syndrome, Lennox-Gastaut syndrome, and across a broad range of epilepsies. 5-HT_{2c} agonism has shown clinical benefit in epilepsy patients, however, currently available 5-HT₂ agonists have been associated with significant adverse side effects. LP352 was discovered at Arena, and was developed to be the next-generation to lorcaserin. LP352 has novel chemistry and attributes, and was designed with the goal of being a safer, more effective 5-HT_{2c} superagonist. We hold worldwide rights to LP352 through the Arena License Agreement.

LP352 has potential best-in-class selectivity on the 5-HT_{2c} receptor subtype, as shown in the following table:

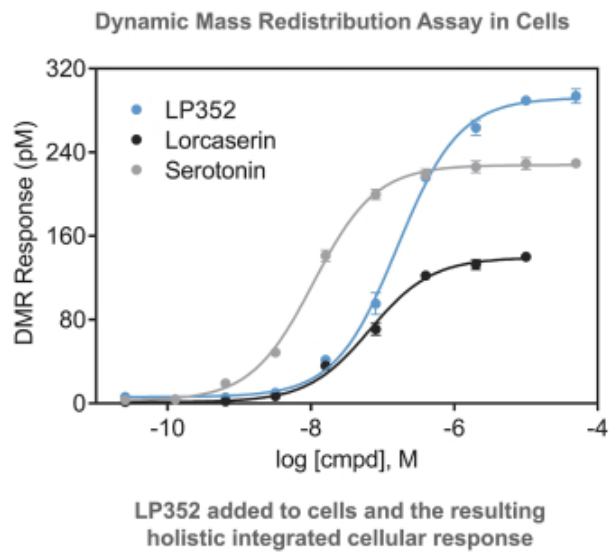
	Serotonin Receptor Subtype	EC ₅₀ , nM	K _i , nM	Selectivity 2c vs 2b	Selectivity 2c vs 2a
LP352 5-HT _{2c} Superagonist	5-HT _{2c}	~120	~50	>200x	>200x
	5-HT _{2b}	>10,000	>10,000		
	5-HT _{2a}	>10,000	>10,000		
Nordextenfluramine ⁽¹⁾ (an active metabolite of fenfluramine)	5-HT _{2c}	72.4	10.4	0.94x	11.5x
	5-HT _{2b}	25.7	9.8		
	5-HT _{2a}	1778	120.2		
Lorcaserin ⁽²⁾	5-HT _{2c}	99	13	11.3x	7.1x
	5-HT _{2b}	2380	147		
	5-HT _{2a}	553	92		

(1) Third party study previously commissioned by Arena

(2) BELVIQ FDA approved prescribing information 06/2012

The above table is for illustrative purposes only and is not a head-to-head comparison. Differences exist between *in vitro* study designs and methodologies, and caution should be exercised when comparing data across studies.

A superagonist is a compound that is capable of producing a higher receptor response than the endogenous agonist. We have shown LP352 to be a superagonist in a dynamic mass redistribution assay measuring a holistic integrated cellular response to lorcaserin, serotonin and LP352. This assay demonstrated that, as the concentration of LP352 increases, the cellular response is greater than the endogenous ligand serotonin and considerably more than lorcaserin. The results of this assay are demonstrated below.



LP352 Clinical Development Overview

LP352 is being evaluated in a Phase 1 clinical trial in healthy volunteers that consists of five parts. Parts A and C are randomized, double-blind, placebo-controlled, parallel-group, SAD and MAD designs. Part B is a randomized, double-blind, placebo-controlled, single-dose design, and includes participants from Part A to assess food effect. Part D is an open-label, crossover design to assess relative bioavailability and food effect of a liquid formulation. Part E is a randomized, double-blind, placebo-controlled, multi-dose titration design. Safety and tolerability will be evaluated throughout the clinical trial, and blood sampling and urine collection for PK analysis will be also collected. In Parts A, B, C, and E, LP352 will be administered as a capsule formulation. In Part D, LP352 will be administered as a capsule or as a liquid. The Phase 1 clinical trial will enroll approximately 94 to 126 healthy participants.

Part A SAD Results—The SAD portion of the clinical trial has been completed. Overall, LP352 was observed to be generally well-tolerated, and AEs were consistent with events observed with other centrally acting 5-HT_{2c} agonists. Headache was the dose limiting AE, and mild to moderate headache was the most common treatment-emergent AE. There were no SAEs reported, and no subjects dropped out due to AEs.

Part B Food Effect Results—LP352 demonstrated no significant food effect and achieved target plasma exposure (C_{min}).

In the SAD and food effect portions of the clinical trial, LP352 demonstrated favorable PK and pharmacodynamic effects, including dose dependent PK properties with proportional increases in AUC and C_{max}.

Part C MAD—The MAD portion of this trial is anticipated to begin enrollment in . We plan to advance the MAD portion of the Phase 1 clinical trial in , and expect to have data for this portion in .

Part D Relative Bioavailability and Food Effect for a Liquid Formulation—Part D will examine the safety, tolerability, relative bioavailability and food effect of a liquid formulation of LP352 administered.

Part E Dose Titration—In Part E the safety and tolerability of titrating LP352 will be examined.

Phase 1b/2a Clinical Trial

A Phase 1b/2a safety, tolerability and exploratory efficacy clinical trial of LP352 is in the planning stage. This will be a randomized double-blind placebo-controlled trial. Adult subjects with a variety of treatment resistant motor seizures and seizure disorders that fall into the category of DEEs will be enrolled. We plan to initiate a Phase 1b/2a clinical trial in , pending authorization to proceed under an IND we intend to submit to the FDA's Division of Neurology.

LP143, a centrally acting, highly selective, full CB2 agonist

We are developing LP143, a centrally acting, highly selective, full CB₂ agonist, for neurodegenerative diseases associated with neuroinflammation caused by microglial activation. CB₂ agonism has been shown to regulate neuroinflammatory processes, reducing the neuronal damage characteristic of degeneration. We believe there is strong rationale for CB₂ agonism in neurodegenerative diseases, given increased CB₂ expression in patients with these diseases as well as results from animal models. LP143, through its selectivity for CB₂, versus the CB₁, was designed to minimize the risk of psychoactive adverse effects associated with CB₁ activation. Our initial focus is in ALS and we also see potential to treat a range of other neurodegenerative diseases. LP143 is currently in IND-enabling studies and we anticipate submitting an IND to the FDA in .

ALS Background

Disease Overview—ALS is a progressive nervous system disease that leads to muscle weakness and paralysis. The disease is characterized by rapid progression of muscle wasting and weakness until death ensues due to respiratory muscle failure. Most ALS patients experience rapid disease progression and poor prognosis, with paralysis and death seen within a span of two to five years from diagnosis. The prevalence in the United States was estimated at approximately 16,000 people and the prevalence in the EU is estimated at approximately 29,000 people. The rate of incidence is estimated at 2:100,000 people, with approximately 5,000 people in the United States diagnosed each year. The primary pathology associated with ALS involves motor neuron

degeneration. Most causes of ALS are unknown, with two primary suggested theories involving neuroinflammation and oxidative damage. There is a growing body of evidence that microglia, a type of non-neuronal (glial) cell located throughout the brain and spinal cord, are activated in ALS and are key to motor neuron degeneration and disease progression. It is also believed that ALS could have multifactorial etiology, with environmental factors contributing to disease pathology.

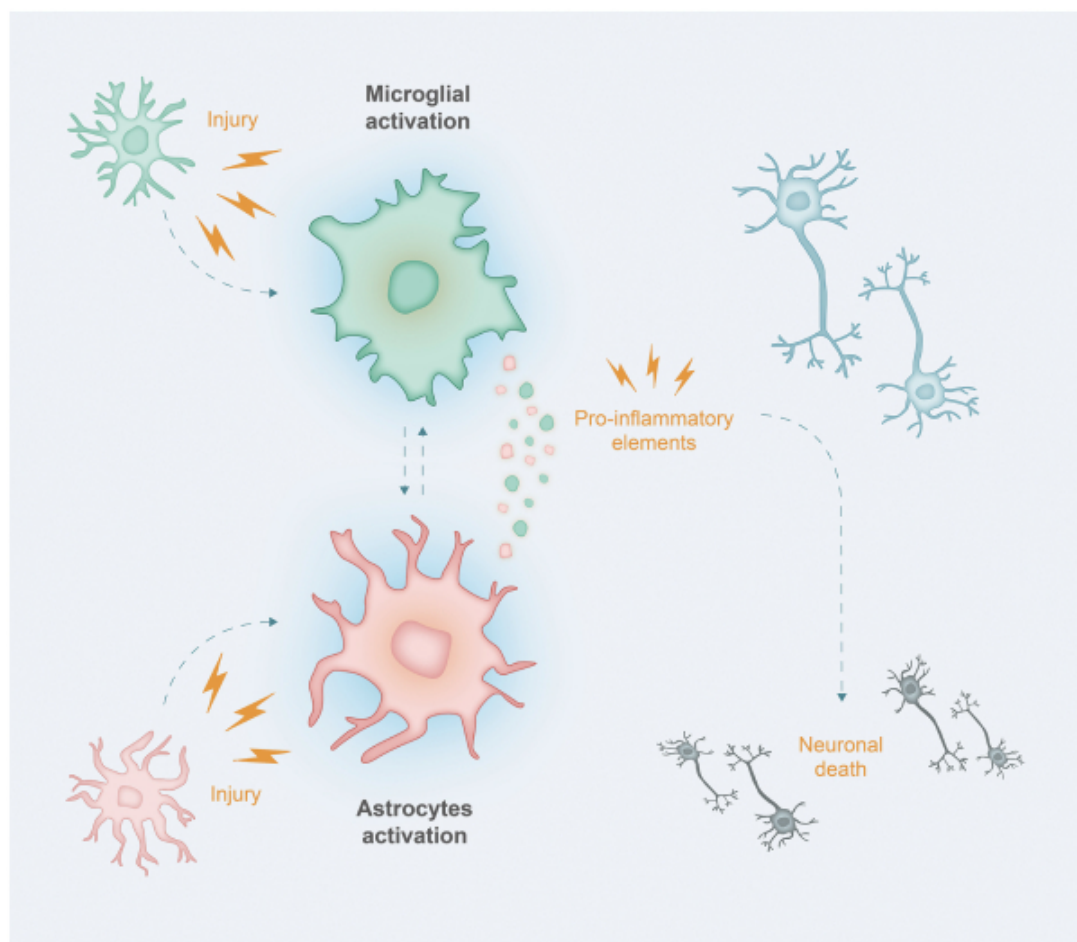
Current Treatment Paradigm—There is currently no cure for ALS. Rilutek (riluzole) and Radicava (edaravone) are the only FDA approved drugs to slow disease progression in ALS but there remains significant unmet medical need. Rilutek was approved by the FDA in 1995 as the first treatment for ALS. The approval was based on two studies demonstrating a survival benefit of two to three months. Radicava was approved by the FDA in 2017 based on the findings of a Phase 3 clinical trial conducted in Japan. Results showed patients on Radicava experienced a 33% slower decline in their ability to perform everyday activities versus patients on a placebo. Radicava did not demonstrate a significant survival benefit.

Microglial Activation and Neurodegeneration

Microglia are involved in both innate and adaptive immunity in the CNS. Their interaction with T cells is a major component of brain autoimmunity, and their pathogenic interactions with neurons play a role in neurodegeneration. Traditionally, microglial cells have been categorized into two types: M1 microglia, which are cytotoxic and release proinflammatory cytokines, and M2 microglia, which are protective and release anti-inflammatory cytokines and neutrophins. However, it has been increasingly recognized that there are a variety of microglial phenotypes in the brain with phenotypes now seen as more of a grayscale, making delineation into two categories more difficult.

Though not classified as an autoimmune disease, ALS disease pathogenesis involves neuroinflammation resulting from the presence of microglia, astrocytes (a subtype of glial cell), and T lymphocytes. As shown in the figure below, neurotoxic signaling from motor neurons stimulate cells to shift from anti-inflammatory and neuroprotective to pro-inflammatory and neurotoxic. The activated cells then produce reactive oxygen species and pro-inflammatory cytokines, leading to motor neuron stress, cell damage, and cell death.

This activation is illustrated in the below:



Cannabinoid Receptors

The endocannabinoid system (ECS) regulates functions such as pain, stress, appetite, energy metabolism, cardiovascular function, reward and motivation, reproduction, and sleep. The ECS is comprised of a network of endocannabinoid receptors found throughout the CNS and peripheral nervous system.

Interest has increased in cannabinoids for their antioxidant, anti-inflammatory, and anti-excitotoxic effects in preclinical models. Studies have shown that cannabinoids inhibit the release of pro-inflammatory cytokines and chemokines, suppressing the inflammatory response. *In vivo* studies in ALS have suggested cannabinoids act as neuroprotective and anti-oxidant agents in ALS and have the potential to reduce oxidative cell damage and neuroinflammation, the two purported causes of neurodegeneration. Additionally, these studies demonstrated the ability of cannabinoids to delay disease progression and prolong survival.

CB2 Receptors

There are two main cannabinoid receptors, CB1 and CB2, both of which are GPCRs. CB1 is expressed primarily on neurons and glial cells in the brain and CB2 is expressed primarily in immune system cells and

cortical and spinal motor neurons. CB2, which normally exists in the peripheral system, is up-regulated in the inflamed neural tissues associated with neurodegenerative disorders. Most cannabinoids and endocannabinoids bind to both receptor types. CB1 is a protein typically targeted by delta-9-THC, the main compound in cannabis known for its euphoric and intoxicating effects. The role that CB2 plays in neurodegeneration has become increasingly recognized. The activation of CB2 has been shown to attenuate the activation of microglia and astrocytes and reduce ensuing microglial mediated neuroinflammation. Conversely, increased microglial activation, pathology, and inflammation were observed in CB2 knockout mice. Reduction of the inflammation in turn has led to improvements in function across a range of neurodegenerative diseases.

A body of evidence is growing that supports CB2 targeting in various degenerative diseases, with an increase in CB2 notably observed in patients with Alzheimer's disease. There has also been recent interest in targeting CB2 in Parkinson's disease as the presence of CB2 has been shown to be up-regulated in glial elements in Parkinson's disease patients. The Michael J. Fox Foundation for Parkinson's Research is running animal model studies evaluating the effect of CB2 modulation in Parkinson's disease patients and exploring their anti-inflammatory and neuroprotective potential. The role of CB2 has also been implicated in Huntington's disease, where CB2 presence has been upregulated, and receptor-mediated agonism has been shown to attenuate microglial activation. Additionally, a protective effect of CB2 activation in microglial cells upon inflammatory-induced CNS damage has been demonstrated in mouse models for multiple sclerosis.

Our Solution

LP143 in ALS and Other Neurodegenerative Diseases

We are developing LP143, a centrally acting, highly selective, full CB2 agonist for neurodegenerative diseases associated with neuroinflammation caused by microglial activation. CB2 agonism has been shown in preclinical studies to regulate neuroinflammatory processes, reducing the neuronal damage characteristic of degeneration. We believe there is a strong rationale for CB2 agonism in neurodegenerative diseases, given increased CB2 expression in patients with these diseases as well as results from animal models. We see potential for a selective CB2 agonist to treat a range of neurodegenerative diseases. LP143, through its selectivity for CB2, versus CB1, was designed to minimize the risk of psychoactive AEs associated with CB1 activation. Our initial focus is on ALS. Most ALS patients experience rapid disease progression and poor prognosis, with paralysis and death seen within a span of two to five years. Preclinical data have demonstrated the benefit of CB2 agonism in a mouse model of ALS, with treated mice demonstrating delays in loss of motor function and improved survival. In preclinical studies, LP143 has demonstrated high potency and selectivity, 1,000-fold selectivity for CB2 over CB1, sustained activity over the duration of treatment, and favorable blood-brain-barrier penetration. LP143 is currently in IND-enabling studies and we anticipate submitting an IND to the FDA in .

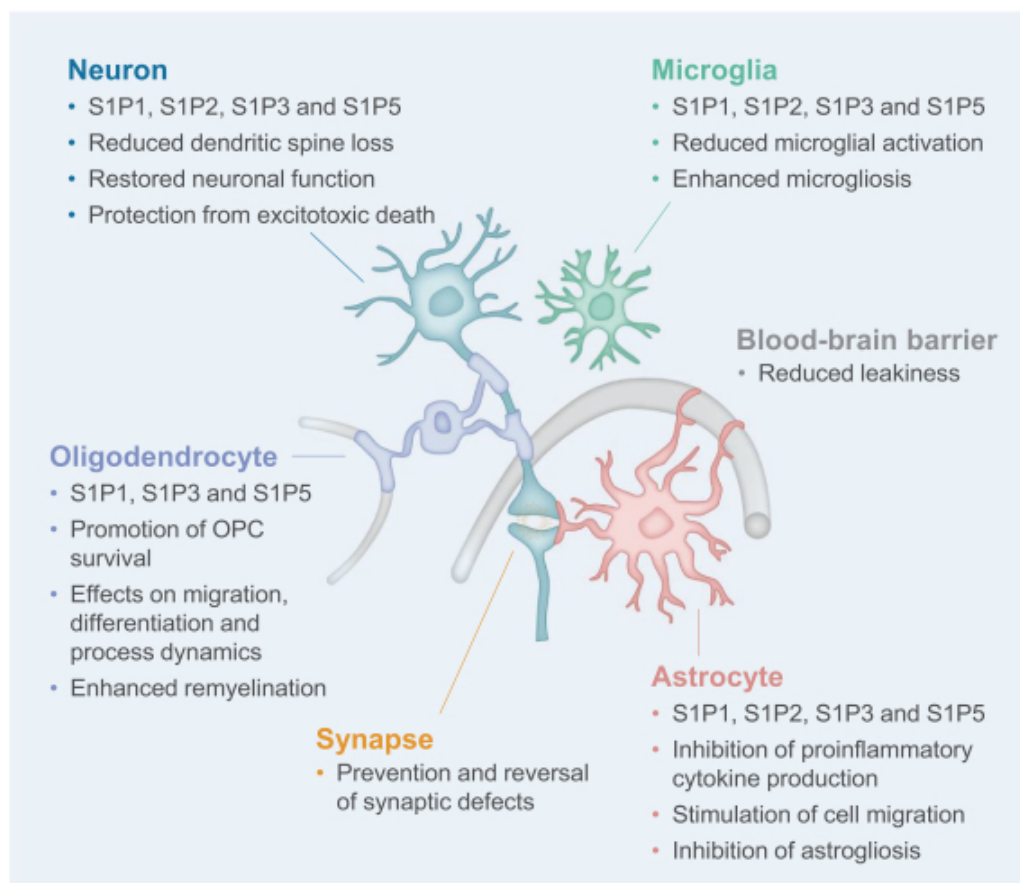
LP659, a centrally acting, highly selective S1P1,5 modulator

We are developing LP659, a centrally acting, highly selective S1P1,5 receptor modulator for neurodegenerative diseases. LP659 was designed for optimized pharmacology, PK and engagement of S1P1,5, which may lead to improved efficacy and safety. With the selective targeting of S1P1,5, LP659 was designed to be a potent and selective small molecule S1P1,5 receptor modulator that reduces the severity of disease and potentially avoids the negative effects connected to the receptor subtypes 2 and 3, which may be associated with more serious, off-target cardiac, pulmonary, and cancer-related effects. Aberrant S1P receptor modulation has been shown to be involved in a wide range of neurodegenerative diseases, including multiple sclerosis, Lupus, Parkinson's disease and Alzheimer's disease. Preclinical data demonstrated an initial dose-dependent decrease in disease progression over 17 days in a mouse model of demyelinating disease. LP659 rapidly reduced circulating lymphocytes, which returned to baseline after its clearance. We believe LP659 has high oral bioavailability with a direct impact on CNS glial cell S1P receptors. LP659 is currently in IND-enabling studies and we anticipate submitting an IND to the FDA in .

S1P Receptors

S1P receptor modulators are expressed broadly in the CNS. By limiting lymphocyte circulation, S1P receptor modulators exert anti-inflammatory effects. Multiple S1P receptor modulators have been approved for the treatment of relapsing forms of multiple sclerosis. There are five known receptor types: S1P1, S1P2, S1P3, S1P4 and S1P5. S1P1, S1P2 and S1P3 receptors are expressed broadly, S1P4 is primarily expressed in immune system cells, and S1P5 is expressed primarily in the spleen and CNS. Astrocytes are the most abundant cells in the human CNS and preferentially express S1P3 and S1P1 and express S1P2 at low levels. Oligodendrocytes, oligodendrocyte precursor cells (OPC), neurons, and microglia are other brain cells that express S1P.

The various brain cell types are illustrated in the below:



Our Solution

LP659 in Neurodegenerative Diseases

LP659 acts as a selective S1P1 and S1P5 receptor subtypes modulator with no observed impact on S1P2 or S1P3 and has been selectively developed to cross the blood-brain barrier and target neurodegenerative diseases. The S1P1 receptor has been well-validated in slowing the progression of neurodegeneration, notably in multiple sclerosis. With the selective targeting of S1P1,5, LP659 was designed to be a potent and selective small molecule S1P receptor modulator that reduces the severity of disease and potentially avoids the negative effects connected

to the receptor subtypes 2 and 3, which may be associated with more serious, off-target cardiac, pulmonary, and cancer-related effects. Though initial studies have been run in a widely accepted model of demyelinating disease (e.g. multiple sclerosis), we have not finalized a target indication as we see potential for a selective S1P1 receptor modulator to treat a spectrum of neurodegenerative diseases.

License Agreement with Arena

In October 2020, we entered into the Arena License Agreement with Arena. Pursuant to the Arena License Agreement, Arena granted us an exclusive, royalty bearing, sublicensable, worldwide license under certain know-how and patents of Arena to develop and commercialize LP352 for any use in humans, LP143 for the treatment of any CNS indication in humans (excluding the treatment, prevention or amelioration of pain or any gastrointestinal, non-CNS autoimmune or cardiovascular disorder), and LP659 for the treatment of selected CNS indications in humans (pharmaceutical products containing any such compounds, Licensed Products). Arena further granted us a covenant not to sue under any patents or certain information of Arena with respect to each Licensed Product in its respective field. We agreed not to use the licensed intellectual property with respect to LP352 for weight loss, weight management or obesity as long as we remain an affiliate of Arena. Arena retained the exclusive right to use the licensed intellectual property to develop, make or use intermediates, pro-drugs and metabolites related to the LP352, LP143 and LP659 compounds to exploit certain products commercialized by Arena, and we granted Arena a covenant not to sue with respect to such activities under certain of our intellectual property related to such compounds and the Licensed Products. We will assign to Arena new intellectual property developed by us related to such compounds. We have sole responsibility over development, regulatory and commercialization activities for the Licensed Products in the applicable fields, as well as commercial manufacture and supply therefor. We are required to use commercially reasonable efforts to perform certain development and regulatory activities for an LP143 product and a LP659 product in the applicable fields, seek regulatory approval therefor in the United States and the EU, and following regulatory approval, to commercialize such Licensed Product.

As consideration for the rights granted to us under the Arena License Agreement, we will be required to pay to Arena a mid-single digit royalty on net sales of Licensed Products of LP352, and a low-single digit royalty on net sales of all other Licensed Products, by us, our affiliates or our sublicensees, subject to standard reductions. Our royalty obligations continue on a Licensed Product-by-Licensed Product and country-by-country basis until the later of the (i) tenth anniversary of the first commercial sale of such product in such country or (ii) expiration of the last-to-expire valid claim of the patents licensed to us under the Arena License Agreement covering the manufacture, use or sale of such product in such country.

We may unilaterally terminate the Arena License Agreement for any reason with a specified prior notice period, and Arena may terminate the Arena License Agreement if we challenge any of the licensed patents. Either party may terminate the Arena License Agreement in the event of the other party's insolvency or for the other party's uncured material breach of the Arena License Agreement. Absent early termination, the Arena License Agreement will automatically expire upon the expiration of all our payment obligations under the Arena License Agreement.

Services Agreement with Arena

In October 2020, we entered into a Services Agreement with Arena (Services Agreement) under which Arena agreed to perform certain research and development services, general administrative services, management services and other mutually agreed services for us and receive service fees therefor on an hourly rate based on an annual full time equivalent rate agreed upon by the parties. As part of such performance of services, Arena will assign, and we will assume, certain third-party contracts related to the Licensed Products. Under the Services Agreement, Arena will assign to us the results of the services performed for us, along with the intellectual property rights in the foregoing, excluding certain intellectual property rights to be retained by Arena pursuant to

the Arena License Agreement or otherwise designated to be owned by Arena in the Research and Development Plan under the Services Agreement. The term of the Services Agreement will continue until December 31, 2021, and will automatically renew for successive one-year terms, unless either party desires not to renew prior to the expiration of the then-current term. Each party may also terminate the Services Agreement for any reason, subject to specified notice periods.

Intellectual Property

Our success depends in part on our ability to obtain and maintain proprietary protection for our product candidates and other discoveries, inventions, trade secrets and know-how that are critical to our business operations. Our success also depends in part on our ability to operate without infringing the proprietary rights of others, and in part, on our ability to prevent others from infringing our proprietary rights. A comprehensive discussion on risks relating to intellectual property is provided under the section of this prospectus entitled “Risk Factors—Risks Related to Our Intellectual Property.”

As of December 1, 2020, we held an exclusive, worldwide license to issued and pending patent claims for compositions of matter and methods of treatment using LP352 in several jurisdictions, including the United States, Europe, Japan and China. The terms of the composition of matter patents are capable of continuing into 2036, which may be extended up to five additional years in certain jurisdictions if maximum patent term extension (PTE) or supplementary protection certificate (SPC) applies.

As of December 1, 2020, we held an exclusive, worldwide license to issued and pending patent claims for compositions of matter and certain methods of treatment using LP659 in several jurisdictions, including the United States, Europe, Japan and China. The terms of the composition of matter patents are capable of continuing into 2029, which may be extended up to five additional years in certain jurisdictions if maximum PTE or SPC applies. If issued, the terms of later filed patent applications may provide additional exclusivity beyond the composition of matter patents.

As of December 1, 2020, we held an exclusive, worldwide license to issued and pending patent claims for compositions of matter and certain methods of treatment using LP143 in several jurisdictions, including the United States, Europe, Japan and China. The terms of the composition of matter patents are capable of continuing into 2030, which may be extended up to five additional years in certain jurisdictions if maximum PTE or SPC applies. If issued, the terms of later filed patent applications may provide additional exclusivity beyond the composition of matter patents.

In addition to patent protection, we rely on trade secret protection, trademark protection and know-how to expand our proprietary position around our chemistry, technology and other discoveries and inventions that we consider important to our business. We are a party to a license agreement under which we are granted intellectual property rights to know-how that are important to our business. We have licensed know-how related to the LP352, LP143 and LP659 compounds in all countries around the world from Arena. The Arena License Agreement imposes various development, regulatory and/or commercial diligence obligations, payment of milestones and/or royalties and other obligations.

We also seek to protect our intellectual property by having confidentiality terms in our agreements with companies with whom we share proprietary and confidential information in the course of business discussions, and by having confidentiality terms in our agreements with our employees, consultants, scientific advisors, clinical investigators and other contractors and also by requiring our employees, commercial contractors, and certain consultants and investigators, to enter into invention assignment agreements that grant us ownership of any discoveries or inventions made by them while in our employ.

Sales and Marketing

Given our stage of development, we have not yet established a commercial organization or distribution capabilities. We intend to build a commercial infrastructure to support sales of any of our approved products. We

expect to manage sales, marketing and distribution through internal resources and third-party relationships. While we may commit significant financial and management resources to commercial activities, we will also consider collaborating with one or more pharmaceutical companies to enhance our commercial capabilities.

Manufacturing

We do not own or operate, and currently have no plans to establish, any manufacturing facilities. We currently rely, and expect to continue to rely for the foreseeable future, on third parties for the manufacturing of our product candidates for preclinical and clinical testing, as well as for commercial manufacture of any products that we may commercialize. We expect to initially obtain our supplies from manufacturers on a purchase order basis without long-term supply arrangements in place. We do not currently have arrangements in place for redundant supply for active pharmaceutical ingredients (APIs) and drug product. For all of our product candidates, we intend to identify and qualify manufacturers to provide the APIs and drug product prior to submission of a New Drug Application (NDA) to the FDA or other marketing authorization applications to other regulatory authorities.

All our product candidates are compounds of low molecular weight, generally called small molecules. They can be manufactured from readily available starting materials in reliable and reproducible synthetic processes that are amenable to scale-up and do not require specialized equipment in the manufacturing process. We expect to continue to develop product candidates that can be produced cost-effectively at contract manufacturing facilities.

Competition

The biopharmaceutical industry is characterized by rapidly advancing competition and a strong emphasis on proprietary drugs. We face competition with respect to our current product candidates and will face competition with respect to any other product candidates that we may seek to develop or commercialize in the future, from major pharmaceutical companies, specialty pharmaceutical companies and biotechnology companies worldwide.

DEEs are commonly treated with multiple combinations of AEDs though physician preference for administered therapies differs across different epilepsy types. Pharmaceutical companies, such as Eisai, Lundbeck, Pfizer, and UCB have approved AEDs for the treatment of epilepsies. There are also non-pharmaceutical therapies for epilepsy patients, such as a ketogenic diet, VNS, and surgery for some patients. Recently, two companies have obtained FDA approval for symptoms associated with DEEs. Fenfluramine was approved for the treatment of seizures associated with Dravet syndrome on June 25, 2020, and became available through a REMS program in July 2020, and cannabidiol was approved by the FDA for the treatment of seizures associated with Dravet syndrome and Lennox-Gastaut syndrome in 2018. Lorcaserin also is in a Phase 3 clinical trial for the treatment of seizures associated with Dravet syndrome. In addition, other companies are developing therapeutics for the treatment of epilepsies, including alternative approaches such as gene therapy.

There is currently no cure for ALS. Rilutek (riluzole) and Radicava (edaravone) are the only FDA approved drugs that have been observed to slow disease progression in ALS. There are a number of companies seeking to developing treatments for ALS.

In the S1P receptor modulator space, there are three drugs that have been approved by the FDA for the treatment of certain indications in multiple sclerosis: fingolimod, ozanimod, and siponimod. There are multiple additional S1P receptor modulators in development for additional therapeutic indications beyond multiple sclerosis, including in other neurodegenerative diseases. There are also numerous other drugs and product candidates in development for indications for which we might develop our product candidates.

Additional potential competitors include academic institutions, government agencies and other public and private research organizations that conduct research, seek patent protection and establish collaborative arrangements for research, development, manufacturing and commercialization.

There are a number of large pharmaceutical and biotechnology companies that currently market and sell products or are pursuing the development of product candidates for the treatment of the indications that we are pursuing. More established companies may have a competitive advantage over us due to their greater size, resources and institutional experience. In particular, these companies have greater experience and expertise in securing reimbursement, government contracts, relationships with key opinion leaders, conducting testing and clinical trials, obtaining and maintaining regulatory approvals and distribution relationships to market products, and marketing approved drugs. These companies also have significantly greater research and marketing capabilities than we do.

The key competitive factors affecting the success of our product candidates are likely to be their efficacy and safety, the scope and limitations of marketing approval, success of regulatory approval, successful protection of our intellectual property, and the availability of funding and reimbursement.

Government Regulation and Product Approval

As a pharmaceutical company that operates in the United States, we are subject to extensive 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, manufacturing, quality control, approval, labeling, packaging, storage, record-keeping, promotion, advertising, distribution, post-approval monitoring and reporting, marketing and export and import of drug products such as those we are developing. Product candidates that we develop must be approved by the FDA, before they may be legally marketed in the United States and by the appropriate foreign regulatory agency before they may be legally marketed in foreign countries. Generally, our activities in other countries will be subject to regulation that is similar in nature and scope as that imposed in the United States, although there can be important differences. Additionally, some significant aspects of regulation in Europe are addressed in a centralized way, but country-specific regulation remains essential in many respects.

U.S. Drug Development Process

In the United States, the FDA regulates drugs under the Federal Food, Drug and Cosmetic Act (FDCA), and implementing regulations. A new drug must be approved by the FDA through the new drug application (NDA) process before it may be legally marketed in the United States. 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 require the expenditure of substantial time and financial resources. Failure to comply with the applicable U.S. requirements at any time during the product development process, approval process or after approval, may subject an applicant to administrative or judicial sanctions. FDA sanctions could include, among other actions, refusal to approve pending applications, withdrawal of an approval, a clinical hold, warning letters, product recalls or withdrawals from the market, product seizures, total or partial suspension of production or distribution injunctions, fines, refusals of government contracts, restitution, disgorgement 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 extensive preclinical laboratory tests, preclinical animal studies and formulation studies in accordance with applicable regulations, including the FDA's Good Laboratory Practice (GLP) regulations and other applicable regulations;
- submission to the FDA of an IND, which must become effective before human clinical trials may begin;
- approval by an independent institutional review board (IRB) at each clinical site before each trial may be initiated;
- performance of adequate and well-controlled human clinical trials in accordance with applicable regulations, including the FDA's good clinical practice (GCP) regulations to establish the safety and efficacy of the proposed drug for its proposed indication;

[Table of Contents](#)

- submission to the FDA of an NDA after completion of all pivotal trials;
- a determination by the FDA within 60 days of its receipt of an NDA to file the NDA for review;
- satisfactory completion of an FDA pre-approval inspection of the manufacturing facility or facilities where the drug is produced to assess compliance with the FDA's current good manufacturing practice (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 preclinical and/or clinical trial sites that generated the data in support of the NDA to assess compliance with GCP regulations;
- satisfactory completion of an FDA advisory committee review, if applicable; and
- FDA review and approval of the NDA prior to any commercial marketing or sale of the drug in the United States.

Before testing any compounds with potential therapeutic value in humans, the drug candidate enters the preclinical testing stage. Preclinical 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 preclinical tests must comply with federal regulations and requirements including GLPs. The sponsor must submit the results of the preclinical tests, together with manufacturing information, analytical data, any available clinical data or literature and a proposed clinical protocol, to the FDA as part of the IND. An IND is a request for authorization from the FDA to administer an investigational drug product to humans. The central focus of an IND submission is on the general investigational plan and the protocol(s) for human trials. Some preclinical testing may continue even after the IND is submitted. The IND automatically becomes effective 30 days after receipt by the FDA, unless the FDA raises concerns or questions regarding the proposed clinical trials and places the IND on 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.

Clinical trials involve the administration of the drug candidate to healthy volunteers or patients under the supervision of qualified investigators, generally physicians not employed by or under the trial sponsor's control, in accordance with GCPs, which include the requirement that all research subjects provide their informed consent for their participation in any clinical trial. Clinical trials are conducted under 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 and assess efficacy. Each protocol, and any subsequent amendments to the protocol, must be submitted to the FDA as part of the IND. Further, each clinical trial must be reviewed and approved by an independent 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 completed. There are also requirements governing the reporting of ongoing clinical trials and completed clinical trial results to public registries.

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, the side effects associated with increasing doses and if possible, to gain early evidence of effectiveness. 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 in patients.
- Phase 2. The drug is evaluated in a limited patient population to identify possible adverse effects and safety risks, to preliminarily evaluate the efficacy of the product for specific targeted diseases or

conditions and to determine dosage tolerance, optimal dosage and dosing schedule. Multiple Phase 2 clinical trials may be conducted to obtain information prior to beginning larger and more expensive Phase 3 clinical trials.

- Phase 3. The drug is administered to an expanded patient population to further evaluate dosage and clinical efficacy at geographically dispersed clinical trial sites. These clinical trials are intended to establish the overall benefit/risk ratio of the product and provide an adequate basis for product approval. Generally, two adequate and well-controlled Phase 3 clinical trials are required by the FDA for approval of an NDA.

Post-approval studies, or Phase 4 clinical trials, may be conducted after initial marketing approval. These trials are used to gain additional experience from the treatment of patients in the intended therapeutic indication. In certain instances, FDA may mandate the performance of Phase 4 trials. In certain instances, the FDA may mandate the performance of Phase 4 clinical trials as a condition of approval of an NDA.

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 the FDA to reach agreement on the next phase of development. Sponsors typically use the meetings at the end of the Phase 2 trial to discuss Phase 2 clinical results and present plans for the pivotal Phase 3 clinical trials that they believe will support approval of the new drug.

Progress reports detailing the 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 AEs or any finding from tests in laboratory animals that suggests a significant risk for human subjects. Phase 1, Phase 2 and Phase 3 clinical trials may not be completed successfully within any specified period, if at all. The FDA, the IRB, or the sponsor may suspend or terminate a clinical trial at any time on various grounds, including a finding that the research subjects or patients are being exposed to an unacceptable health risk. Similarly, an IRB can suspend or terminate approval of a clinical 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 patients. Additionally, some clinical trials are overseen by an independent group of qualified experts organized by the clinical trial sponsor, known as a data safety monitoring board or committee. This group provides authorization for whether or not a trial may move forward at designated check points based on access to certain data from the trial.

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, must develop methods for testing the identity, strength, quality and purity of the final drug. 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.

U.S. Review and Approval Processes

Assuming successful completion of all required testing in accordance with all applicable regulatory requirements, the results of product development, preclinical studies and clinical trials, along with descriptions of the manufacturing process, analytical tests conducted on the chemistry of the drug, proposed labeling and other relevant information are submitted to the FDA as part of an NDA requesting approval to market the product. Data may come from company-sponsored clinical trials intended to test the safety and effectiveness of a use of a product, or from a number of alternative sources, including studies initiated by investigators. To support

marketing approval, the data submitted must be sufficient in quality and quantity to establish the safety and effectiveness of the investigational drug product to the satisfaction of the FDA. The submission of an NDA is subject to the payment of substantial user fees; a waiver of such fees may be obtained under certain limited circumstances.

In addition, the Pediatric Research Equity Act (PREA) requires a sponsor to conduct pediatric clinical trials for most drugs, for a new active ingredient, new indication, new dosage form, new dosing regimen or new route of administration. Under PREA, original NDAs and supplements must contain a pediatric assessment unless the sponsor has received a deferral or waiver. The required assessment must evaluate the safety and effectiveness of the product for the claimed indications in all relevant pediatric subpopulations and support dosing and administration for each pediatric subpopulation for which the product is safe and effective. The sponsor or FDA may request a deferral of pediatric clinical trials for some or all of the pediatric subpopulations. A deferral may be granted for several reasons, including a finding that the drug is ready for approval for use in adults before pediatric clinical trials are complete or that additional safety or effectiveness data need to be collected before the pediatric clinical trials begin. The FDA must send a non-compliance letter to any sponsor that fails to submit the required assessment, keep a deferral current or fails to submit a request for approval of a pediatric formulation. Unless otherwise required by regulation, the Pediatric Research Equity Act does not apply to any drug for an indication for which orphan designation has been granted. However, if only one indication for a product has orphan designation, a pediatric assessment may still be required for any applications to market that same product for the non-orphan indication(s).

The FDA reviews all NDAs submitted before it accepts them for filing and may request additional information rather than accepting an NDA for filing. The FDA must make a decision on accepting an NDA for filing within 60 days of receipt. Once the submission is accepted for filing, the FDA begins an in-depth review of the NDA. Under the Prescription Drug User Fee Act (PDUFA) guidelines that are currently in effect, the FDA has a goal of ten months from the date of “filing” of a standard NDA for a new molecular entity to review and act on the submission. This review typically takes twelve months from the date the NDA is submitted to FDA because the FDA has approximately two months to make a “filing” decision after it the application is submitted. The FDA does not always meet its PDUFA goal dates for standard and priority NDAs, and the review process is often significantly extended by FDA requests for additional information or clarification.

After the NDA submission is accepted for filing, 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 and typically follows the advisory committee’s recommendations.

Before approving an NDA, the FDA will inspect the facilities at which the product is 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 may inspect one or more clinical sites to assure compliance with GCP requirements. After the FDA evaluates the application, manufacturing process and manufacturing facilities, it may issue an approval letter or a Complete Response Letter. An approval letter authorizes commercial marketing of the drug with specific prescribing information for specific indications. A Complete Response Letter indicates that the review cycle of the application is complete and the application will not be approved in its present form. A Complete Response Letter usually describes all of the specific deficiencies in the NDA identified by the FDA. The Complete Response Letter may require additional clinical data and/or (an) additional pivotal Phase 3 clinical trial(s), and/or other significant and time-consuming requirements related

to clinical trials, preclinical studies or manufacturing. 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. Even if such data and information are submitted, the FDA may ultimately decide that the NDA does not satisfy the criteria for approval.

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 or may condition the approval of the NDA on other changes to the proposed labeling, development of adequate controls and specifications, or a commitment to conduct one or more post-market studies or clinical trials. For example, the FDA may require Phase 4 testing, which involves clinical trials designed to further assess a drug safety and effectiveness, and may require testing and surveillance programs to monitor the safety of approved products that have been commercialized. The FDA may also determine that a 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 an approved REMS, if required. A REMS could include medication guides, physician communication plans, or elements to assure safe use, such as restricted distribution methods, patient registries and other risk minimization tools.

Orphan Drug Designation

Under the Orphan Drug Act, the FDA may grant orphan designation to a drug intended to treat a rare disease or condition, which is a disease or condition that affects fewer than 200,000 individuals in the United States or, if it affects more than 200,000 individuals in the United States, there is no reasonable expectation that the cost of developing and making a drug product available in the United States for this type of disease or condition will be recovered from sales of the product. Orphan designation must be requested before submitting an NDA. After the FDA grants orphan designation, the identity of the therapeutic agent and its potential orphan use are disclosed publicly by the FDA. Orphan designation does not convey any advantage in or shorten the duration of the regulatory review and approval process.

If a product that has orphan designation subsequently receives the first FDA approval for the disease or condition for which it has such designation, the product is entitled to orphan product exclusivity, which means that the FDA may not approve any other applications to market the same drug or biological product for the same indication for seven years, except in limited circumstances, such as a showing of clinical superiority to the product with orphan exclusivity or inability to manufacture the product in sufficient quantities. The designation of such drug also entitles a party to financial incentives such as opportunities for grant funding towards clinical trial costs, tax advantages and user-fee waivers. Competitors, however, may receive approval of different products for the indication for which the orphan product has exclusivity or obtain approval for the same product but for a different indication for which the orphan product has exclusivity. If an orphan designated product receives marketing approval for an indication broader than what is designated, it may not be entitled to orphan exclusivity.

Expedited Development and Review Programs

The FDA has a fast track designation program that is intended to expedite or facilitate the process for reviewing new drug products that meet certain criteria. Specifically, new drugs are eligible for Fast Track designation if they are intended to treat a serious or life-threatening disease or condition and demonstrate the potential to address unmet medical needs for the disease or condition. Fast track designation applies to the combination of the product and the specific indication for which it is being studied. The sponsor of a fast track product has opportunities for more frequent interactions with the applicable FDA review team during product development and, once a NDA is submitted, the product candidate may be eligible for priority review. With regard to a fast track product, the FDA may consider for review sections of the NDA on a rolling basis before the complete application is submitted, if the sponsor provides a schedule for the submission of the sections of the

NDA, the FDA agrees to accept sections of the NDA and determines that the schedule is acceptable, and the sponsor pays any required user fees upon submission of the first section of the NDA.

Any product submitted to the FDA for approval, including a product with a fast track designation, may also be eligible for other types of FDA programs intended to expedite development and review, such as priority review and accelerated approval. A product is eligible for priority review if it is designed to treat a serious condition, and if approved, would provide a significant improvement in the treatment, diagnosis or prevention of a serious condition compared to marketed products. The FDA will attempt to direct additional resources to the evaluation of an application for a new drug designated for priority review in an effort to facilitate the review. The FDA endeavors to review applications with priority review designations within six months of the filing date as compared to ten months for review of new molecular entity NDAs under its current PDUFA review goals.

In addition, a product may be eligible for accelerated approval. Drug products intended to treat serious or life-threatening diseases or conditions may be eligible for accelerated approval upon a determination that the product has an effect on a surrogate endpoint that is reasonably likely to predict clinical benefit, or on a clinical endpoint that can be measured earlier than irreversible morbidity or mortality, that is reasonably likely to predict an effect on irreversible morbidity or mortality or other clinical benefit, taking into account the severity, rarity, or prevalence of the condition and the availability or lack of alternative treatments. As a condition of approval, the FDA may require that a sponsor of a drug receiving accelerated approval perform adequate and well-controlled post-marketing clinical trials to verify the predicted clinical benefit. Products receiving accelerated approval may be subject to expedited withdrawal procedures if the sponsor fails to conduct the required clinical trials, or if such trials fail to verify the predicted clinical benefit. In addition, the FDA currently requires as a condition for accelerated approval pre-approval of promotional materials, which could adversely impact the timing of the commercial launch of the product.

A sponsor may seek FDA designation of a drug candidate as a “breakthrough therapy” if the drug is intended, alone or in combination with one or more other drugs, to treat a serious or life-threatening disease or condition and preliminary clinical evidence indicates that the drug may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. The designation includes intensive FDA interaction and guidance. If a drug is designated as breakthrough therapy, FDA will expedite the development and review of such drug. Breakthrough therapy designation includes all of the fast track program features, as well as more intensive FDA interaction and guidance. The breakthrough therapy designation is a distinct status from both accelerated approval and priority review, which can also be granted to the same drug if relevant criteria are met. If a product is designated as breakthrough therapy, the FDA will work to expedite the development and review of such drug.

Fast track designation, priority review, accelerated approval and breakthrough therapy designation do not change the standards for approval but may expedite the development or approval process. Even if a product qualifies for one or more of these programs, the FDA may later decide that the product no longer meets the conditions for qualification or decide that the time period for FDA review or approval will not be shortened. In addition, such designations or shortened review periods may not provide a material commercial advantage.

Post-Approval Requirements

Any drug products manufactured or distributed pursuant to 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, and complying with FDA promotion and advertising requirements. After approval, most changes to the approved product, such as adding new indications or other labeling claims, are subject to prior FDA review and approval. There also are continuing, annual program fees for any marketed products.

In addition, quality control and manufacturing procedures must continue to conform to applicable manufacturing requirements after approval to ensure the long term stability of the drug product. cGMP

regulations require among other things, quality control and quality assurance as well as the corresponding maintenance of records and documentation and the obligation to investigate and correct any deviations from cGMP. Drug manufacturers and other entities involved in the manufacture and distribution of approved drugs are required to register their establishments with the FDA and certain state agencies, and are subject to periodic unannounced inspections by the FDA and certain state agencies for compliance with cGMP and other laws. Accordingly, manufacturers must continue to expend time, money, and effort in the area of production and quality control to maintain cGMP compliance. In addition, changes to the manufacturing process are strictly regulated, and depending on the significance of the change, may 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.

The FDA may withdraw approval if compliance with regulatory requirements and standards is not maintained or if problems occur after the product reaches the market. Later discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or with manufacturing processes, or failure to comply with regulatory requirements, may result in revisions to the approved labeling to add new safety information, imposition of post-market studies or clinical studies to assess new safety risks, or imposition of distribution restrictions or other restrictions under a REMS program. Other potential consequences include, among other things:

- restrictions on the marketing or manufacturing of the product, complete withdrawal of the product from the market or product recalls;
- fines, warning letters, or untitled letters;
- clinical holds on clinical studies;
- refusal of the FDA to approve pending applications or supplements to approved applications, or suspension or revocation of product approvals;
- product seizure or detention, or refusal to permit the import or export of products;
- consent decrees, corporate integrity agreements, debarment or exclusion from federal healthcare programs;
- mandated modification of promotional materials and labeling and the issuance of corrective information;
- the issuance of safety alerts, Dear Healthcare Provider letters, press releases and other communications containing warnings or other safety information about the product; or
- injunctions or the imposition of civil or criminal penalties.

The FDA closely regulates the marketing, labeling, advertising and promotion of drug products. A company can make only those claims relating to safety and efficacy, purity and potency that are approved by the FDA and in accordance with the provisions of the approved label. The FDA and other agencies actively enforce the laws and regulations prohibiting the promotion of off label uses. Failure to comply with these requirements can result in, among other things, adverse publicity, warning letters, corrective advertising and potential civil and criminal penalties. Physicians may prescribe, in their independent professional medical judgment, legally available products for uses that are not described in the product's labeling and that differ from those tested and approved by the FDA. Physicians may believe that such off-label uses are the best treatment for many patients in varied circumstances. The FDA does not regulate the behavior of physicians in their choice of treatments. The FDA does, however, restrict manufacturer's communications on the subject of off-label use of their products. The federal government has levied large civil and criminal fines against companies for alleged improper promotion of off-label use and has enjoined companies from engaging in off-label promotion. The FDA and other regulatory agencies have also required that companies enter into consent decrees or permanent injunctions under which specified promotional conduct is changed or curtailed. However, companies may share truthful and not misleading information that is otherwise consistent with a product's FDA-approved labelling.

U.S. Patent Term Restoration and Marketing Exclusivity

Depending upon the timing, duration and specifics of the FDA approval of the use of our product candidates, some of our U.S. patents, if granted, may be eligible for limited patent term extension under the Drug Price Competition and Patent Term Restoration Act of 1984, commonly referred to as the Hatch-Waxman Amendments. The Hatch-Waxman Amendments permit a patent restoration term of up to five years, as compensation for patent term lost during product development and the FDA regulatory review process. However, patent term restoration cannot extend the remaining term of a patent beyond a total of 14 years from the product's approval date. The patent term restoration period is generally one-half the time between the effective date of an IND and the submission date of an NDA plus the time between the submission date of an NDA and the approval of that application. Only one patent applicable to an approved drug is eligible for the extension and the application for the extension must be submitted prior to the expiration of the patent. The U.S. Patent and Trademark Office, in consultation with the FDA, reviews and approves the application for any patent term extension or restoration. In the future, we may intend to apply for restoration of patent term for one of our currently owned or licensed patents to add patent life beyond its current expiration date, depending on the expected length of the clinical trials and other factors involved in the filing of the relevant NDA.

Market exclusivity provisions under the FDCA can also delay the submission or the approval of certain marketing applications. 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 approve or even accept for review an abbreviated new drug application (ANDA) or a 505(b)(2) NDA submitted by another company for another drug based on the same active moiety, regardless of whether the drug is intended for the same indication as the original innovative drug or for another indication, where the applicant does not own or have a legal right of reference to all the data required for approval. However, an application may be submitted after four years if it contains a certification of patent invalidity or non-infringement to one of the patents listed with the FDA by the innovator NDA holder. The FDCA alternatively 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 modification for which the drug received approval on the basis of the new clinical investigations and does not prohibit the FDA from approving ANDAs for drugs containing the active agent for the original indication or condition of use. Five-year and three-year exclusivity will not delay the submission or approval of a full NDA. However, an applicant submitting a full NDA would be required to conduct or obtain a right of reference to all of the preclinical studies and adequate and well-controlled clinical trials necessary to demonstrate safety and effectiveness.

Orphan drug exclusivity, as described above, may offer a seven-year period of marketing exclusivity, except in certain circumstances. Pediatric exclusivity is another type of non-patent market exclusivity in the United States. Pediatric exclusivity, if granted, adds six months to existing exclusivity periods and patent terms. This six-month exclusivity, which runs from the end of other exclusivity protection or patent term, may be granted based on the voluntary completion of a pediatric trial in accordance with an FDA-issued "Written Request" for such a trial.

DEA Regulation

The Controlled Substances Act of 1970 (CSA) establishes registration, security, recordkeeping, reporting, storage, distribution and other requirements administered by the DEA. The DEA is concerned with the control of handlers of controlled substances, and with the equipment and raw materials used in their manufacture and packaging, in order to prevent loss and diversion into illicit channels of commerce. The DEA regulates controlled substances as Schedule I, II, III, IV or V substances. Schedule I substances by definition have no established

medicinal use, and may not be marketed or sold in the United States. A pharmaceutical product may be listed as Schedule II, III, IV or V, with Schedule II substances considered to present the highest risk of abuse and Schedule V substances the lowest relative risk of abuse among such substances.

Annual registration is required for any facility that manufactures, distributes, dispenses, imports or exports any controlled substance. The registration is specific to the particular location, activity and controlled substance schedule. For example, separate registrations are needed for import and manufacturing, and each registration will specify which schedules of controlled substances are authorized. The DEA typically inspects a facility to review its security measures prior to issuing a registration. Security requirements vary by controlled substance schedule, with the most stringent requirements applying to Schedule I and Schedule II substances. Required security measures include background checks on employees and physical control of inventory through measures such as cages, surveillance cameras and inventory reconciliations. Records must be maintained for the handling of all controlled substances, and periodic reports made to the DEA. Reports must also be made for thefts or losses of any controlled substance, and authorization must be obtained to destroy any controlled substance. In addition, special authorization and notification requirements apply to imports and exports.

To meet its responsibilities, the DEA conducts periodic inspections of registered establishments that handle controlled substances. Failure to maintain compliance with applicable requirements, particularly as manifested in loss or diversion, can result in enforcement action that could have a material adverse effect on our business, results of operations and financial condition. The DEA may seek civil penalties, refuse to renew necessary registrations, or initiate proceedings to revoke those registrations. In certain circumstances, violations could eventuate in criminal proceedings. Individual states also regulate controlled substances, and we and our contract manufacturers will be subject to state regulation on distribution of these products.

Other U.S. Healthcare Laws and Compliance Requirements

Although we currently do not have any products on the market, we are and, upon approval and commercialization, will be subject to additional healthcare regulation and enforcement by the federal government and by authorities in the states and foreign jurisdictions in which we conduct our business. In the United States, such laws include, without limitation, state and federal anti-kickback, fraud and abuse, false claims, privacy and security, price reporting, and physician sunshine laws and regulations.

The federal Anti-Kickback Statute prohibits, among other things, any person or entity, from knowingly and willfully offering, paying, soliciting or receiving any remuneration, directly or indirectly, overtly or covertly, in cash or in kind, to induce or in return for purchasing, leasing, ordering or arranging for the purchase, lease or order of any item or service reimbursable under Medicare, Medicaid or other federal healthcare programs. The term remuneration has been interpreted broadly to include anything of value. The Anti-Kickback Statute has been interpreted to apply to arrangements between pharmaceutical manufacturers on the one hand and prescribers, purchasers, and formulary managers on the other. There are a number of statutory exceptions and regulatory safe harbors protecting some common activities from prosecution. The exceptions and safe harbors are drawn narrowly and practices that involve remuneration that may be alleged to be intended to induce prescribing, purchasing or recommending may be subject to scrutiny if they do not qualify for an exception or safe harbor. Failure to meet all of the requirements of a particular applicable statutory exception or regulatory safe harbor does not make the conduct per se illegal under the Anti-Kickback Statute. Instead, the legality of the arrangement will be evaluated on a case-by-case basis based on a cumulative review of all of its facts and circumstances. Our practices may not in all cases meet all of the criteria for protection under a statutory exception or regulatory safe harbor.

Additionally, 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.

The federal false claims laws, including the False Claims Act, which prohibit, among other things, any person or entity from knowingly presenting, or causing to be presented, a false claim for payment to, or approval

by, the federal government or knowingly making, using, or causing to be made or used a false record or statement material to a false or fraudulent claim to the federal government. As a result of a modification made by the Fraud Enforcement and Recovery Act of 2009, a claim under the False Claims Act includes “any request or demand” for money or property presented to the U.S. government. The federal civil False Claims Act can be enforced through private “qui tam” actions brought by individual whistleblowers in the name of the government. In addition, manufacturers can be held liable under the civil False Claims Act even when they do not submit claims directly to government payors if they are deemed to “cause” the submission of false or fraudulent claims. Pharmaceutical and other healthcare companies have been prosecuted under these laws for, among other things, allegedly providing free product to customers with the expectation that the customers would bill federal programs for the product and for causing false claims to be submitted because of the companies’ marketing of the product for unapproved, and thus non-covered, uses. In addition, a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the federal False Claims Act.

The federal Health Insurance Portability and Accountability Act of 1996 (HIPAA) also created new federal criminal statutes that prohibit, among other things, knowingly and willfully executing, or attempting to execute, a scheme to defraud or to obtain, by means of false or fraudulent pretenses, representations or promises, any money or property owned by, or under the control or custody of, any healthcare benefit program, including private third-party payors and knowingly and willfully falsifying, concealing or covering up by trick, scheme or device, a material fact or making any materially false, fictitious or fraudulent statement in connection with the delivery of or payment for healthcare benefits, items or services. Similar to the federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation. Also, many states have similar fraud and abuse statutes or regulations that apply to items and services reimbursed under Medicaid and other state programs, or, in several states, apply regardless of the payor.

Additionally, the federal Physician Payments Sunshine Act, 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) annually report information related to certain payments or other transfers of value made or distributed to physicians (currently defined to include doctors, dentists, optometrists, podiatrists and chiropractors) and teaching hospitals, certain ownership and investment interests held by physicians and their immediate family members. Effective January 1, 2022, applicable manufacturers will also be required to report information regarding payments and other transfers of value provided during the previous year to physician assistants, nurse practitioners, clinical nurse specialists, certified nurse anesthetists, and certified nurse-midwives.

We may also be subject to data privacy and security regulations by both the federal government and the states in which we conduct our business. HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act (HITECH) and its implementing regulations, impose requirements relating to the privacy, security and transmission of individually identifiable health information. Among other things, HITECH makes HIPAA’s privacy and security standards directly applicable to business associates, independent contractors or agents of covered entities that receive or obtain protected health information in connection with providing a service on behalf of a covered entity as well as their covered subcontractors. 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.

We also are or will become subject to applicable privacy laws in the jurisdictions in which we are established or in which we sell or market our products or run clinical trials. For example, if we conduct EU-based clinical trials, we will be subject to Regulation (EU) 2016/679, the General Data Protection Regulation (GDPR)

in relation to our collection, control, processing and other use of personal data of European data subjects (i.e. data relating to an identifiable living individual). We process personal data in relation to participants in our clinical trials in the European Economic Area, including the health and medical information of these participants. The GDPR is directly applicable in each EU Member State, however, it provides that EU Member States may introduce further conditions, including limitations which could limit our ability to collect, use and share personal data (including health and medical information), or could cause our compliance costs to increase, ultimately having an adverse impact on our business. The GDPR imposes onerous accountability obligations requiring data controllers and processors to maintain a record of their data processing activities and implement policies as part of its mandated privacy governance framework. It also requires data controllers to be transparent and disclose to data subjects (in a concise, intelligible and easily accessible form) how their personal information is to be used, imposes limitations on retention of personal data; defines for the first time pseudonymized (i.e., key-coded) data; introduces mandatory data breach notification requirements; and sets higher standards for data controllers to demonstrate that they have obtained valid consent for certain data processing activities. We are also subject to EU rules with respect to cross-border transfers of personal data out of the EU and European Economic Area. We are subject to the supervision of local data protection authorities in those EU jurisdictions where we are established or otherwise subject to the GDPR, and we maintain an office in Switzerland, which has its own set of stringent privacy and data protection laws and regulations. Fines for certain breaches of the GDPR are significant: up to the greater of €20 million or 4% of total global annual turnover. In addition to the foregoing, a breach of the GDPR or other applicable privacy and data protection laws and regulations could result in regulatory investigations, reputational damage, orders to cease/change our use of data, enforcement notices, or potential civil claims including class action type litigation.

In addition, the GDPR includes restrictions on cross-border data transfers. Certain aspects of cross-border data transfers under the GDPR are uncertain as the result of legal proceedings in the EU, including a recent decision by the Court of Justice for the EU that invalidated the EU-U.S. Privacy Shield and, to some extent, called into question the efficacy and legality of using standard contract clauses. This may increase the complexity of transferring personal data across borders. The GDPR will increase our responsibility and liability in relation to personal data that we process where such processing is subject to the GDPR, and we may be required to put in place additional mechanisms to ensure compliance with the GDPR, including as implemented by individual countries.

Further, the vote in the United Kingdom (UK) in favor of exiting the EU, referred to as Brexit, has created uncertainty with regard to data protection regulation in the UK. Specifically, while the Data Protection Act of 2018, which “implements” and complements the GDPR achieved Royal Assent on May 23, 2018 and is now effective in the UK, aspects of data protection in the UK, such as the transfer of data from the EEA to the UK, remain uncertain. During the period of “transition” (i.e., until December 31, 2020), EU law will continue to apply in the UK, including the GDPR, after which the GDPR will be converted into UK law. Beginning in 2021, the UK will be a “third country” under the GDPR.

In addition, California recently enacted the California Consumer Privacy Act (CCPA) which creates new individual privacy rights for California consumers (as defined in the law) and places increased privacy and security obligations on entities handling certain personal data of consumers or households. The CCPA will require covered companies to provide new disclosure to consumers about such companies’ data collection, use and sharing practices, provide such consumers new ways to opt-out of certain sales or transfers of personal information, and provide consumers with additional causes of action. The CCPA became effective on January 1, 2020, and (a) allows enforcement by the California Attorney General, with fines set at \$2,500 per violation (i.e., per person) or \$7,500 per intentional violation and (b) authorizes private lawsuits to recover statutory damages for certain data breaches.

Additionally, a new privacy law, the California Privacy Rights Act (CPRA), was approved by California voters on November 3, 2020. When it goes into effect on January 1, 2023, the CPRA will modify significantly the CCPA, potentially resulting in further uncertainty and requiring us to incur additional costs and expenses in

an effort to comply. Both the CCPA and CPRA could impact our business activities depending on how they are interpreted and exemplifies the vulnerability of our business to not only cyber threats but also the evolving regulatory environment related to personal data and protected health information.

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. Several states have enacted legislation requiring pharmaceutical companies to establish marketing compliance programs, file periodic reports with the state, make periodic public disclosures on sales, marketing, pricing, track and report gifts, compensation and other remuneration made to physicians and other healthcare providers, clinical trials and other activities, and/or register their sales representatives, as well as to prohibit pharmacies and other healthcare entities from providing certain physician prescribing data to pharmaceutical companies for use in sales and marketing, and to prohibit certain other sales and marketing practices. All of our activities are also potentially subject to federal and state consumer protection and unfair competition laws.

If our operations are found to be in violation of any of the federal and state healthcare laws described above or any other governmental regulations that apply to us, we may be subject to significant penalties, including without limitation, civil, criminal and/or administrative penalties, damages, fines, disgorgement, imprisonment, exclusion from participation in government programs, such as Medicare and Medicaid, injunctions, private “qui tam” actions brought by individual whistleblowers in the name of the government, or refusal to allow us to enter into government contracts, contractual damages, reputational harm, administrative burdens, diminished profits and future earnings, 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.

Pharmaceutical Coverage, Pricing and Reimbursement

Significant uncertainty exists as to the coverage and reimbursement status of any product candidates for which we or our collaborators obtain regulatory approval. In the United States and markets in other countries, sales of any products for which we receive regulatory approval for commercial sale will depend, in part, on the extent to which third-party payors provide coverage, and establish adequate reimbursement levels for such drug products.

In the United States, third-party payors include federal and state healthcare programs, government authorities, private managed care providers, private health insurers and other organizations. Third-party payors are increasingly challenging the price, examining the medical necessity and reviewing the cost-effectiveness of medical drug products and medical services, in addition to questioning their safety and efficacy. Such payors may limit coverage to specific drug products on an approved list, also known as a formulary, which might not include all of the FDA-approved drugs for a particular indication. We or our collaborators may need to conduct expensive pharmaco-economic studies in order to demonstrate the medical necessity and cost-effectiveness of our products, in addition to the costs required to obtain the FDA approvals. Nonetheless, our product candidates may not be considered medically necessary or cost-effective. Moreover, the process for determining whether a third-party payor will provide coverage for a drug product may be separate from the process for setting the price of a drug product or for establishing the reimbursement rate that such a payor will pay for the drug product. A payor’s decision to provide coverage for a drug product does not imply that an adequate reimbursement rate will be approved. Further, no uniform policy for coverage and reimbursement exists in the United States, and coverage and reimbursement can differ significantly from payor to payor. As a result, one payor’s determination to provide coverage for a drug product does not assure that other payors will also provide coverage for the drug product. 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.

If we elect to participate in certain governmental programs, we may be required to participate in discount and rebate programs, which may result in prices for our future products that will likely be lower than the prices we might otherwise obtain. For example, drug manufacturers participating under the Medicaid Drug Rebate Program must pay rebates on prescription drugs to state Medicaid programs.

Different pricing and reimbursement schemes exist in other countries. In the EU, governments influence the price of pharmaceutical products through their pricing and reimbursement rules and control of national health care 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 health care 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.

The marketability of any product candidates for which we or our collaborators receive regulatory approval for commercial sale may suffer if the government and third-party payors fail to provide adequate coverage and reimbursement. In addition, emphasis on managed care in the United States has increased and we expect will continue to increase the pressure on pharmaceutical pricing. Coverage policies and third-party reimbursement rates may change at any time. Even if favorable coverage and reimbursement status is attained for one or more products for which we or our collaborators receive regulatory approval, less favorable coverage policies and reimbursement rates may be implemented in the future.

Healthcare Reform

A primary trend in the U.S. healthcare industry and elsewhere is cost containment. Government authorities and other third-party payors have attempted to control costs by limiting coverage and the amount of reimbursement for particular medical products and services, implementing reductions in Medicare and other healthcare funding and applying new payment methodologies. For example, in March 2010, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act (collectively ACA), was enacted, which affected existing government healthcare programs and resulted in the development of new programs.

Among the ACA's provisions of importance to the pharmaceutical industry, in addition to those otherwise described above, are the following:

- an annual, nondeductible fee on any entity that manufactures or imports certain specified branded prescription drugs and biologic agents apportioned among these entities according to their market share in some government healthcare programs;
- an increase in the statutory minimum rebates a manufacturer must pay under the Medicaid Drug Rebate Program to 23.1% and 13% of the average manufacturer price for most branded and generic drugs, respectively, and a cap on the total rebate amount for innovator drugs at 100% of the Average Manufacturer Price (AMP);
- a new Medicare Part D coverage gap discount program, in which manufacturers must agree to offer 70% point-of-sale discounts off negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for the manufacturers' 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;

[Table of Contents](#)

- expansion of eligibility criteria for Medicaid programs by, among other things, allowing states to offer Medicaid coverage to additional individuals, including individuals with income at or below 133% 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; and
- a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research.

There remain judicial and Congressional challenges to certain aspects of the ACA, as well as efforts by the Trump administration to repeal or replace certain aspects of the ACA. For example, the Tax Act was enacted, which includes a provision repealing, effective January 1, 2019, the tax-based shared responsibility payment imposed by the ACA on certain individuals who fail to maintain qualifying health coverage for all or part of a year that is commonly referred to as the "individual mandate." On December 14, 2018, a U.S. District Court Judge in the Northern District of Texas ruled that the individual mandate is a critical and inseparable feature of the ACA, and therefore, because it was repealed as part of the Tax Act, the remaining provisions of the ACA are invalid as well. Additionally, on December 18, 2019, the United States Court of Appeals for the 5th Circuit upheld the District Court ruling that the individual mandate was unconstitutional and remanded the case back to the District Court to determine whether the remaining provisions of the ACA are invalid as well. The case is currently under review by the United States Supreme Court. It is unclear how such litigation and other efforts to challenge, repeal or replace the ACA will impact the ACA or our business.

Other legislative changes have also been proposed and adopted in the United States since the Healthcare Reform Act was enacted. On August 2, 2011, the Budget Control Act of 2011, among other things, included aggregate reductions to Medicare payments to providers of 2% per fiscal year, which went into effect on April 1, 2013 and, due to subsequent legislative amendments to the statute, will remain in effect through 2030, with the exception of a temporary suspension from May 1, 2020 through December 31, 2020, unless additional Congressional action is taken. In January 2013, the American Taxpayer Relief Act of 2012 was signed into law, which, among other things, further reduced Medicare payments to several providers, including hospitals, imaging centers and cancer treatment centers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years. There has been heightened governmental scrutiny recently over the manner in which pharmaceutical companies set prices for their marketed products, which has resulted in several Congressional inquiries and proposed federal legislation, as well as state efforts, designed to, among other things, bring more transparency to product pricing, reduce the cost of prescription drugs under Medicare, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for drug products.

We anticipate that these new laws will result in additional downward pressure on coverage and the price that we receive for any approved product, and could seriously harm our business. Any reduction in reimbursement from Medicare and 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. In addition, it is possible that there will be further legislation or regulation that could harm our business, financial condition, and results of operations. Further, it is possible that additional governmental action is taken in response to the evolving effects of the COVID-19 pandemic. Additionally, health reform initiatives may arise in the future, particularly as a result of the recent presidential election.

The U.S. Foreign Corrupt Practices Act

The U.S. Foreign Corrupt Practices Act of 1977 (FCPA) prohibits any U.S. individual or business from paying, offering, or authorizing payment or offering of anything of value, directly or indirectly, to any foreign official, political party or candidate for the purpose of influencing any act or decision of the foreign entity in

order to assist the individual or business in obtaining or retaining business. The FCPA also obligates companies whose securities are listed in the United States to comply with accounting provisions requiring the company to maintain books and records that accurately and fairly reflect all transactions of the corporation, including international subsidiaries, and to devise and maintain an adequate system of internal accounting controls for international 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 or our potential collaborators obtain FDA approval for a product, 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 an application for a clinical trial authorization (CTA) much like the IND prior to the commencement of human clinical trials. In the EU, for example, a CTA must be submitted to each country's national health authority and an application made to an independent ethics committee, much like the FDA and IRB, respectively. Once the CTA is approved in accordance with a country's requirements and a favorable ethics committee opinion has been issued, clinical trial development 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 are conducted in accordance with GCP and the applicable regulatory requirements and the ethical principles that have their origin in the Declaration of Helsinki.

To obtain regulatory approval of an investigational drug or biological product under EU regulatory systems, we must submit a marketing authorization application either under the so-called centralized or national authorization procedures.

Centralized procedure. The centralized procedure provides for the grant of a single marketing authorization by the European Commission following a favorable opinion by the EMA that is valid in all EU member states, as well as Iceland, Liechtenstein and Norway. The centralized procedure is compulsory for medicines produced by specified biotechnological processes, products designated as orphan medicinal products, and products with a new active substance indicated for the treatment of specified diseases, such as HIV/AIDS, cancer, diabetes, neurodegenerative disorders or autoimmune diseases, other immune dysfunctions and viral diseases. The centralized procedure is optional for other products that represent a significant therapeutic, scientific or technical innovation, or whose authorization would be in the interest of public health or which contain a new active substance for indications other than those specified to be compulsory.

National authorization procedures. There are also two other possible routes to authorize medicinal products in several EU countries, which are available for investigational medicinal products that fall outside the scope of the centralized procedure:

- *Decentralized procedure.* Using the decentralized procedure, an applicant may apply for simultaneous authorizations in more than one EU Member State of medicinal products that have not yet been authorized in any EU Member State and that do not fall within the mandatory scope of the centralized procedure.
- *Mutual recognition procedure.* In the mutual recognition procedure, a medicine is first authorized in one EU Member State, in accordance with the national procedures of that country. Following this, further marketing authorizations can be sought from other EU countries in a procedure whereby the countries concerned agree to recognize the validity of the original, national marketing authorization.

The EMA grants orphan drug designation to promote the development of products for the treatment, prevention or diagnosis of life-threatening or chronically debilitating conditions affecting not more than five in

10,000 people in the EU. In addition, orphan drug designation can be granted if the drug is intended for a life threatening or chronically debilitating condition in the EU and without incentives it is unlikely that sales of the drug in the EU would be sufficient to justify the investment required to develop the drug. Orphan drug designation is only available if there is no other satisfactory method approved in the EU of diagnosing, preventing or treating the condition, or if such a method exists, the proposed orphan drug will be of significant benefit to patients. Orphan drug designation provides opportunities for free or reduced-fee protocol assistance, fee reductions for marketing authorization applications and other post-authorization activities and ten years of market exclusivity following drug approval, which can be extended to 12 years if trials are conducted in accordance with an agreed-upon pediatric investigational plan. The exclusivity period may be reduced to six years if the designation criteria are no longer met, including where it is shown that the product is sufficiently profitable not to justify maintenance of market exclusivity.

For other countries outside of the EU, such as countries in Eastern Europe, Latin America or Asia, the requirements governing the conduct of clinical trials, product licensing, pricing and reimbursement vary from country to country. In all cases, again, the clinical trials are conducted in accordance with GCP and the applicable regulatory requirements and the ethical principles that have their origin in the Declaration of Helsinki.

If we or our potential collaborators 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 November 30, 2020, we employed three employees, all of whom are full-time, consisting of clinical, research, operations, finance and business development personnel. One of our employees holds an M.D. degree. None of our employees is subject to a collective bargaining agreement. We consider our relationship with our employees to be good.

Facilities

We lease certain office space in San Diego, California under a month to month lease. Rent payments are approximately \$1,000 per month. We believe that our existing facilities are adequate to meet our current needs, and that suitable additional alternative spaces will be available in the future on commercially reasonable terms.

Legal Proceedings

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

MANAGEMENT**Executive Officers and Directors**

The following table sets forth information regarding our executive officers and directors as of November 30, 2020.

<u>Name</u>	<u>Age</u>	<u>Position</u>
<i>Executive Officers:</i>		
Kevin R. Lind	44	President, Chief Executive Officer, Chief Financial Officer and Director
Philip Perera, M.D.	68	Chief Medical Officer
<i>Non-Employee Directors</i>		
Vincent E. Aurentz	53	Director
Chandra P. Leo, M.D.	50	Director
Phillip M. Schneider	64	Director
Paul J. Sekhri	62	Director
Laurie D. Stelzer	53	Director

- (1) Member of the compensation committee.
- (2) Member of the nominating and corporate governance committee.
- (3) Member of the audit committee.

Executive Officers

Kevin R. Lind has served as our President and Chief Executive Officer since March 2020 and as Chief Financial Officer and Director since our inception in January 2020. Mr. Lind previously served as the Executive Vice President and Chief Financial Officer of Arena from June 2016 to March 2020. Prior to joining Arena, Mr. Lind was a Principal focused on healthcare at TPG Special Situations Partners, a global investment firm, from January 2009 to June 2016. Mr. Lind was a member of the TPG Pharma Partners effort at TPG-Axon Capital, a global investment firm, from 2006 to 2008. He served in various capacities as a healthcare investment banker at Lehman Brothers, Inc., a former global financial services firm, from 1998 to 2002 and 2004 to 2006. Mr. Lind received a B.S. from Stanford University in Biological Sciences and an M.B.A. from UCLA Anderson School of Management. We believe Mr. Lind's perspective and experience as our President, Chief Executive Officer and Chief Financial Officer, as well as his extensive executive experience at Arena, qualify him to serve on our board of directors.

Philip Perera, M.D. has served as our Chief Medical Officer since November 2020. Prior to his appointment as our Chief Medical Officer, Dr. Perera served as a Pharmaceutical Clinical Development Consultant for us from June 2020 to October 2020 where he focused on central nervous system (CNS) disorders and was active in fundraising and all aspects of early development and late phase clinical development planning. Dr. Perera also served as a Senior Medical Consultant Clinical Development to Sage Therapeutics, a biopharmaceutical company, from June 2018 to October 2020, a Consulting Chief Medical Officer and Clinical Lead for Abcentra LLC, a biopharmaceutical company, from June 2018 to September 2020, and a Senior Medical Consultant at ConSynance Therapeutics, Inc., a biopharmaceutical company, from June 2018 to June 2019. Prior to that, Dr. Perera served as a director and Chief Medical Officer, V.P. Development at Dart Neuroscience, Inc., a pharmaceutical company, from December 2009 to June 2018. Dr. Perera previously held senior level clinical, scientific, management and business development positions at GlaxoSmithKline plc, Pharmacia & Upjohn Company LLC, Jazz Pharmaceuticals plc, Pfizer Inc. and the Parkinson's Institute. Prior to working in the pharmaceutical industry Dr. Perera was on the faculty of New York Hospital, Cornell Medical College as Chief of Inpatient Services at North Shore University Hospital, and he was a practicing adult and geriatric psychiatrist. Dr. Perera is a graduate of Harvard Medical School and a board-certified Psychiatrist. He also holds a M.B.A. from Arizona State University and a B.S. from State University of New York College at Old Westbury.

Non-Employee Directors

Vincent E. Aurentz has served as a member of our board of directors since February 2020. Mr. Aurentz has served as the Executive Vice President and Chief Business Officer of Arena since August 2016. Mr. Aurentz has over 30 years of experience in the biopharmaceutical industry. Previously, he was the Chief Business Officer of Epirus Biopharmaceuticals, Inc. a biopharmaceutical company, from November 2015 to July 2016. Prior to that, Mr. Aurentz served as President and was a member of the Board of Directors of HemoShear Therapeutics, LLC from July 2013 to November 2015, where he oversaw the scientific platform, research and development activities, commercial and business development efforts including collaborations with global organizations such as Pfizer, Eli Lilly, Janssen research and development and Children's National Health System. Prior to joining HemoShear, Mr. Aurentz was Executive Vice President and member of the Executive Management Board at Merck KGaA (Merck Serono S.A.) where he directed research and development programs, portfolio strategy and headed all deal activity and venture investments. Mr. Aurentz is a former Executive Vice President at Quintiles and a Co-founder and Managing Director of a venture capital and advisory business. He was a partner with CSC Healthcare, the life sciences strategic management consulting division of Computer Sciences Corporation, after starting his career and working for 8 years at Andersen Consulting (now Accenture). Mr. Aurentz received a B.S. in Mathematics from Villanova University. We believe that Mr. Aurentz's extensive experience in the biopharmaceutical industry and as an executive in public companies qualify him to serve on our board of directors.

Chandra P. Leo, M.D. has served as a member of our board of directors since October 2020. Since 2007, Dr. Leo has been an Investment Advisor of HBM Partners. He brings more than 20 years of experience in healthcare, life sciences and venture capital. Dr. Leo previously worked as a Principal at Wellington Partners, a venture capital firm, from 2003 to 2007. Earlier in his career, Dr. Leo served as a physician at the University Hospital Leipzig and as a postdoctoral scientist at Stanford University Medical Center. Dr. Leo holds a Medical Doctoral Degree from the Freie Universität Berlin and an M.B.A. with distinction from INSEAD. He is a board member at Gynesonics, Inc., a medical device company, as well as Monte Rosa Therapeutics Inc. and NovellusDx Ltd., both biotechnology companies. He previously served on the boards of directors of CardiacAssist Inc. (acquired by LivaNova), a medical device company, as well as ESBATech AG (acquired by Alcon/Novartis) and Galecto Inc., both biotechnology companies. We believe that Dr. Leo is qualified to serve as a member of our board of directors due to his extensive investment and biomedical experience.

Phillip M. Schneider has served as a member of our board of directors since December 2020. Most recently, Mr. Schneider held various positions with IDEC Pharmaceuticals Corporation, a biopharmaceutical company, from 1987 to 2003, including: Senior Vice President and Chief Financial Officer from 1997 to 2003; and Director of Finance and Administration from 1992 to 1997. Prior to that, Mr. Schneider held various management positions at Syntex Pharmaceuticals Corporation, a pharmaceutical company, from 1985 to 1987, and KPMG LLP, an audit and tax advisory firm, from 1982 to 1984, where he attained his CPA license. Mr. Schneider currently serves as a member of the board of directors of ARS Pharmaceuticals, Inc, a pharmaceutical company, since June 2019, and YMCA of San Diego County since 2002. Mr. Schneider previously served as a member of the board of directors at Pfenex Inc. from 2014 until its acquisition by Ligand Pharmaceuticals in 2020, Arena from 2007 to 2018, Auspex Pharmaceuticals from 2014 until its acquisition by Teva Pharmaceuticals in 2015, and Gen-Probe, Inc. from 2002 until its acquisition by Hologic Inc. in 2012. Mr. Schneider holds a B.S. in Biochemistry from the University of California, Davis and an M.B.A. from the University of Southern California. We believe Mr. Schneider is qualified to serve as a director because of his extensive experience in finance and accounting and his experience in the biopharmaceutical industry.

Paul J. Sekhri has served as a member of our board of directors since December 2020. Mr. Sekhri has served as the President and CEO of eGenesis, Inc., a biotechnology company, since January 2019. Prior to joining

eGenesis, Inc., Mr. Sekhri served as President and Chief Executive Officer of Lycera Corp., a biopharmaceutical company, from February 2015 through December 2018. From April 2014 through January 2015, Mr. Sekhri served as Senior Vice President, Integrated Care at Sanofi. From May 2013 through March 2014, Mr. Sekhri served as Group Executive Vice President, Global Business Development and Chief Strategy Officer for Teva Pharmaceutical Industries Ltd. Prior to joining Teva, Mr. Sekhri spent five years as Operating Partner and Head of the Biotechnology Operating Group at TPG Biotech, the life sciences venture capital arm of TPG Capital. From 2004 to 2009, Mr. Sekhri was Founder, President, and Chief Executive Officer of Cerimon Pharmaceuticals, Inc. Prior to founding Cerimon, Mr. Sekhri was President and Chief Business Officer of ARIAD Pharmaceuticals, Inc. Previously, Mr. Sekhri spent five years at Novartis, as Senior Vice President, and Head of Global Search and Evaluation, Business Development and Licensing for Novartis Pharma AG. Mr. Sekhri also developed the Disease Area Strategy for Novartis, identifying those specific therapeutic areas upon which the company would focus. Mr. Sekhri's first role at Novartis was as Global Head, Early Commercial Development. Mr. Sekhri completed graduate work in Neuroscience at the University of Maryland School of Medicine, where he also received his B.S. in Zoology. Mr. Sekhri is currently a member of the Board of Directors of Veeva Systems Inc., Ipsen S.A., and BiomX, and Chairman of the Board of Compugen Ltd., and Pharming Group N.V. As an accomplished pianist, he serves on several non-profit Boards including as Chairman of the Board of The Knights and the Metropolitan Opera. Mr. Sekhri also served as a Member of the Board of Trustees of Carnegie Hall from 2010-2012, and recently founded the Life Science Council of Carnegie Hall where he is also an active member of their Patrons Council. We believe that Mr. Sekhri's extensive executive experience and experience in the pharmaceutical industry qualify him to serve on four board of directors.

Laurie D. Stelzer has served as a member of our board of directors since October 2020. Ms. Stelzer has served as the Executive Vice President and Chief Financial Officer of Arena since March 2020. Previously, Ms. Stelzer spent the last five years as the Chief Financial Officer at Halozyne Therapeutics, Inc., a biotechnology company, leading the Finance, Information Technology, Business Development, Project Management and Site Operations organizations. Prior to joining Halozyne, Ms. Stelzer held senior management roles at Shire Plc (acquired by Takeda), including Senior Vice President of Finance, Division CFO for the Regenerative Medicine Division, and Head of Investor Relations. Previously she held positions of increasing responsibility during her fifteen-year career at Amgen, Inc., spanning the areas of Finance, Treasury, Global Accounting and International/Emerging Markets. Ms. Stelzer received her B.S. in Accounting from Arizona State University, and her M.B.A. from University of California, Los Angeles, Anderson School of Management. She currently serves on the board of directors for Surface Oncology, Inc. and PMV Pharmaceuticals, Inc. We believe that Ms. Stelzer's significant expertise in accounting and finance matters, as well as her extensive experience in the biopharmaceutical industry, qualify her to serve on our board of directors.

Composition of Our Board of Directors

Our business and affairs are managed under the direction of our board of directors. We currently have six directors. Each of our current directors was appointed to serve as a member of our board of directors pursuant to a voting agreement dated October 27, 2020, by and among us and certain of our stockholders. Pursuant to the voting agreement: (1) Dr. Leo was designated by HBM Healthcare Investments (Cayman) Ltd. to serve on our board of directors as a representative of our preferred stockholders; (2) Mr. Aurentz was designated by Arena Pharmaceuticals, Inc. to serve on our board of directors as a representative of our common stockholders; (3) Ms. Stelzer was designated by Arena Pharmaceuticals, Inc. to serve on our board of directors as a representative of our common stockholders; (4) Mr. Lind was designated to serve on our board of directors as the serving Chief Executive Officer; (5) Mr. Schneider was designated to serve on our board of directors as a representative of our common and preferred stockholders, who is not an affiliate of us or of any of our investors; and (6) Mr. Sekhri was designated to serve on our board of directors as a representative of our common and preferred stockholders, who is not an affiliate of us or of any of our investors. The voting agreement will terminate upon the closing of this offering, and thereafter no stockholder will have any special rights regarding the election or designation of the members of our board of directors. Our current directors elected to our board of directors pursuant to the voting agreement will continue to serve as directors until their successors are duly elected and qualified by holders of our common stock.

Our board of directors may establish the authorized number of directors from time to time by resolution. In accordance with our amended and restated certificate of incorporation to be filed in connection with this offering, immediately after this offering, our board of directors will be divided into three classes with staggered three-year terms. At each annual meeting of stockholders, the successors to directors whose terms then expire will be elected to serve from the time of election and qualification until the third annual meeting following election. Our directors will be divided among the three classes as follows:

- the Class I directors will be _____ and _____, and their terms will expire at the annual meeting of stockholders to be held in 2022;
- the Class II directors will be _____ and _____, and their terms will expire at the annual meeting of stockholders to be held in 2023; and
- the Class III directors will be _____ and _____, and their terms will expire at the annual meeting of stockholders to be held in 2024.

We expect that any additional directorships resulting from an increase in the number of directors will be distributed among the three classes so that, as nearly as possible, each class will consist of one third of the directors. The division of our board of directors into three classes with staggered three-year terms may delay or prevent a change of our management or a change in control.

Director Independence

Under the listing requirements and rules of Nasdaq, independent directors must comprise a majority of our board of directors as a listed company within one year of the listing date.

Our board of directors has undertaken a review of the independence of each director. Based on information provided by each director concerning her or his background, employment and affiliations, our board of directors has determined that _____, _____, _____ and _____ do not have relationships that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director and that each of these directors is “independent” as that term is defined under the listing standards. In making these determinations, our board of directors considered the current and prior relationships that each non-employee director has with our company and all other facts and circumstances our board of directors deemed relevant in determining their independence, including the beneficial ownership of our shares by each non-employee director and the transactions described in “Certain Relationships and Related Person Transactions.”

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. In particular our board of directors is responsible for monitoring and assessing strategic risk exposure. Our executive officers are responsible for the day-to-day management of the material risks we face. Our board of directors administers its oversight function directly as a whole. Our board of directors will also administer its oversight through various standing committees, which will be constituted prior to the completion of this offering and address risks inherent in their respective areas of oversight. For example, our audit committee will be responsible for overseeing the management of risks associated with financial reporting, accounting and auditing matters; our compensation committee will oversee the management of risks associated with our compensation policies and programs; and our nominating and corporate governance committee will oversee the management of risks associated with director independence, conflicts of interest, composition and organization of our board of directors and director succession planning.

Committees of Our Board of Directors

Our board of directors has established an audit committee, a compensation committee and a nominating and corporate governance committee. The composition and responsibilities of each of the committees of our board of

directors are described below. Members serve on these committees until their resignation or until otherwise determined by our board of directors. Our board of directors may establish other committees as it deems necessary or appropriate from time to time.

Audit Committee

Our audit committee currently consists of _____, _____ and _____, each of whom our board of directors has determined satisfies the independence requirements under the Nasdaq listing standards and Rule 10A-3(b)(1) of the Exchange Act. The chair of our audit committee is _____, who our board of directors has determined is an “audit committee financial expert” within the meaning of SEC regulations. Each member of our audit committee can read and understand fundamental financial statements in accordance with applicable requirements. In arriving at these determinations, the board of directors has examined each audit committee member’s scope of experience and the nature of their employment in the corporate finance sector.

The primary purpose of the audit committee is to discharge the responsibilities of our board of directors with respect to our corporate accounting and financial reporting processes, systems of internal control and financial-statement audits, and to oversee our independent registered accounting firm. Specific responsibilities of our audit committee include:

- helping our board of directors oversee our corporate accounting and financial reporting processes;
- managing the selection, engagement, qualifications, independence and performance of a qualified firm to serve as the independent registered public accounting firm to audit our financial statements;
- discussing the scope and results of the audit with the independent registered public accounting firm, and reviewing, with management and the independent accountants, our interim and year-end operating results;
- developing procedures for employees to submit concerns anonymously about questionable accounting or audit matters;
- reviewing related person transactions;
- obtaining and reviewing a report by the independent registered public accounting firm at least annually, that describes our internal quality control procedures, any material issues with such procedures, and any steps taken to deal with such issues when required by applicable law; and
- approving, or, as permitted, pre-approving, audit and permissible non-audit services to be performed by the independent registered public accounting firm.

Compensation Committee

Our compensation committee currently consists of _____ and _____. The chair of our compensation committee is _____. Our board of directors has determined that each member of our compensation committee is independent under the Nasdaq listing standards, a “non-employee director” as defined in Rule 16b-3 promulgated under the Exchange Act.

The primary purpose of our compensation committee is to discharge the responsibilities of our board of directors in overseeing our compensation policies, plans and programs and to review and determine the compensation to be paid to our executive officers, directors and other senior management, as appropriate. Specific responsibilities of our compensation committee include:

- reviewing and approving the compensation of our chief executive officer, other executive officers and senior management;
- reviewing and recommending to our board of directors the compensation paid to our directors;
- reviewing and approving the compensation arrangements with our executive officers and other senior management;

Table of Contents

- administering our equity incentive plans and other benefit programs;
- reviewing, adopting, amending and terminating, incentive compensation and equity plans, severance agreements, profit sharing plans, bonus plans, change-of-control protections and any other compensatory arrangements for our executive officers and other senior management;
- reviewing, evaluating and recommending to our board of directors succession plans for our executive officers; and
- reviewing and establishing general policies relating to compensation and benefits of our employees, including our overall compensation philosophy.

Nominating and Corporate Governance Committee

Our nominating and corporate governance committee consists of _____ and _____. The chair of our nominating and corporate governance committee is _____. Our board of directors has determined that each member of the nominating and corporate governance committee is independent under the Nasdaq listing standards, a non-employee director, and free from any relationship that would interfere with the exercise of his or her independent judgment.

Specific responsibilities of our nominating and corporate governance committee include:

- identifying and evaluating candidates, including the nomination of incumbent directors for reelection and nominees recommended by stockholders, to serve on our board of directors;
- considering and making recommendations to our board of directors regarding the composition and chairmanship of the committees of our board of directors;
- instituting plans or programs for the continuing education of our board of directors and orientation of new directors;
- developing and making recommendations to our board of directors regarding corporate governance guidelines and matters; and
- overseeing periodic evaluations of the board of directors' performance, including committees of the board of directors and management.

Code of Conduct

We have adopted a Code of Conduct that applies to all our employees, officers and directors. This includes our principal executive officer, principal financial officer and principal accounting officer or controller, or persons performing similar functions. The full text of our Code of Conduct will be posted on our website at www.longboardpharma.com. We intend to disclose on our website any future amendments of our Code of Conduct or waivers that exempt any principal executive officer, principal financial officer, principal accounting officer or controller, persons performing similar functions or our directors from provisions in the Code of Conduct. Information contained on, or that can be accessed through, our website is not incorporated by reference into this prospectus, and you should not consider information on our website to be part of this prospectus.

Compensation Committee Interlocks and Insider Participation

None of the members of the compensation committee is currently, or has been at any time, one of our officers or employees. None of our executive officers currently serves, or has served during the last calendar year, as a member of the board of directors or compensation committee of any entity that has one or more executive officers serving as a member of our board of directors or compensation committee.

Director Compensation

Except as indicated below, we have historically not paid cash, equity or other compensation to any of our 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, and no such compensation was paid to any of our directors in the year ended December 31, 2020. We have reimbursed, and will continue to reimburse, all of our 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. Kevin R. Lind, our President, Chief Executive Officer and Chief Financial Officer, is also a director but did not receive any additional compensation for his service as a director. See the section entitled “Executive Compensation” for more information regarding the compensation earned by Mr. Lind.

In December 2020, we granted Mr. Schneider and Mr. Sekhri each an option to purchase 18,450 shares of common stock. The option grants each have an exercise price of \$5.00 per share and each vests in 24 equal monthly installments, subject to Mr. Schneider and Mr. Sekhri as applicable, remaining in service with us as of each monthly vesting date. In addition, we agreed to pay each of Mr. Schneider and Mr. Sekhri annual cash compensation of \$25,000, payable quarterly, as compensation for their services to our board of directors.

Prior to the completion of this offering, we expect to implement an annual cash and equity compensation program for our non-employee directors.

EXECUTIVE COMPENSATION

Our named executive officers for the year ended December 31, 2020, consisting of our former Chief Executive Officer, our principal executive officer and the next two most highly compensated executive officers, were:

- Amit D. Munshi, our former Chief Executive Officer;
- Kevin R. Lind, our Chief Executive Officer and President; and
- Philip Perera, M.D., our Chief Medical Officer.

Summary Compensation Table

The following table presents all of the compensation awarded to or earned by or paid to our named executive officers for the fiscal year ended December 31, 2020.

Name and Principal Position	Salary (\$)	Bonus (\$)	Stock Awards (\$)	Option Awards (\$)	Non-Equity Incentive Plan Compensation (\$)	All Other Compensation (\$)	Total (\$)
Amit D. Munshi <i>Former Chief Executive Officer⁽¹⁾</i>							
Kevin R. Lind <i>President, Chief Executive Officer and Chief Financial Officer⁽²⁾</i>							
Philip Perera, M.D. <i>Chief Medical Officer⁽³⁾</i>							

- (1) Mr. Munshi served as our Chief Executive Officer from January 2020 until February 2020 and did not receive any salary or other compensation for his service.
- (2) Mr. Lind has served as our Chief Financial Officer since January 2020 and as our President and Chief Executive Officer since March 2020.
- (3) Dr. Perera has served as our Chief Medical Officer since November 2020.

Narrative to the Summary Compensation Table

Annual Base Salary

Our named executive officers receive a base salary to compensate them for services rendered to us. The base salary payable to each named executive officer is intended to provide a fixed component of compensation reflecting the executive's skill set, experience, role and responsibilities. None of our named executive officers is currently party to an employment agreement or other agreement or arrangement that provides for automatic or scheduled increases in base salary. The 2020 base salaries for our named executive officers were as follows: (i) \$ for Mr. Lind, and (ii) \$ for Dr. Perera. Mr. Munshi did not receive a base salary for his service as our Chief Executive Officer in 2020.

Bonus

Our named executive officers are eligible to receive discretionary annual bonuses based on individual performance, company performance or as otherwise determined appropriate, as determined by our board of directors.

Outstanding Equity Awards as of December 31, 2020

The following table presents estimated information regarding outstanding equity awards held by our named executive officers as of December 31, 2020. See the section entitled “—Equity Incentive Plans—2020 Incentive Plan” below for additional information.

Name	Option Awards				Stock Awards	
	Number of Securities Underlying Unexercised Options Exercisable	Number of Securities Underlying Unexercised Options Unexercisable	Option Exercise Price	Option Expiration Date	Number of Shares of Stock that Have Not Vested	Market Value of Shares that Have Not Vested
Amit D. Munshi						
Kevin R. Lind						
Philip Perera, M.D.						

Other Compensation

Our named executive officers did not participate in, or otherwise receive any benefits under, any pension or retirement plan sponsored by us during the fiscal year ended December 31, 2020, nor did our named executive officers participate in, or earn any benefits under, a non-qualified deferred compensation plan sponsored by us during the fiscal year ended December 31, 2020.

We generally do not provide our named executive officers with significant perquisites or other personal benefits.

Historically, our employees have participated in Arena’s employee 401(k) salary deferral plan, which covers all Arena employees. We plan to establish a 401(k) plan for our employees in 2021. Our named executive officers would be eligible to participate in the 401(k) plan on the same basis as our other employees. The 401(k) plan would be intended to qualify as a tax-qualified plan under Section 401(k) of the Code.

Employment Agreements

Below are descriptions of our offer letters with our named executive officers, including a discussion of the severance pay and other benefits to be provided in connection with a termination of employment and/or a change in control under the arrangements with our named executive officers. We did not enter into an employment arrangement with Mr. Munshi for his services as our Chief Executive Officer in 2020. Each of our named executive officers is employed “at will”.

Mr. Lind. We entered into an offer letter with Mr. Lind in October 2020, which governs the current terms of his employment with us. Pursuant to the agreement, Mr. Lind is entitled to an annual base salary of \$440,000, is eligible to receive an annual discretionary bonus with a target amount of \$180,000, prorated for the number of days employed in a calendar year, as determined by our board of directors, and two equity awards (i) an option to purchase an aggregate of 252,500 shares of our common stock and (ii) a restricted stock award representing 252,500 shares of our common stock, both of which were granted in October 2020. Mr. Lind is also entitled to certain severance benefits upon a termination of his employment without “cause” or resignation for “good reason” (each as defined below), including (i) continued payment of Mr. Lind’s base salary for nine months, (ii) nine months of accelerated vesting of all outstanding equity awards that are subject to time-based vesting, measured from the date of termination, (iii) payment of premiums for continued group health benefits for up to nine months, and (iv) nine months of accelerated vesting of all outstanding equity awards that are subject to time-based vesting, measured from the date of termination, provided that, if such termination or resignation occurs within three months preceding or 14 months immediately following a change in control, the vesting and exercisability of all outstanding time-based stock options and other time-based equity awards covering our common stock shall accelerate in full effective as of the later of (x) Mr. Lind’s termination or resignation date or (y) the effective date of a the change in control. Mr. Lind’s employment is at will.

For the purposes of Mr. Lind's offer letter, "cause" for termination means (A) Mr. Lind has been convicted of a felony or crime involving fraud, dishonesty or moral turpitude; (B) Mr. Lind has participated in any fraud against us; (C) Mr. Lind has persistent unsatisfactory performance of his job duties; (D) Mr. Lind has materially and intentionally damaged company property; (E) Mr. Lind has willfully engaged in misconduct or has violated company policies in a manner that has been materially injurious to company; (F) Mr. Lind materially breached his offer letter, confidentiality agreement or any other agreement with us; or (G) Mr. Lind has participated in conduct that our board of directors in good faith and after reasonable determination has decided demonstrates that he is grossly unfit to serve.

For the purposes of Mr. Lind's offer letter, "good reason" means (A) a material reduction in salary; (B) any material diminution in the authority, duty or responsibilities of Mr. Lind with respect to our business; or (C) an office relocation farther than 50 miles from our principal executive offices.

Dr. Perera. We entered into an offer letter with Dr. Perera in November 2020, which governs the current terms of his employment with us. Pursuant to the agreement, Dr. Perera is entitled to an annual base salary of \$345,000, a target annual discretionary bonus, beginning with calendar year 2021, equal to 35% of his annual base salary, and a grant of a stock option to purchase 151,500 shares of our common stock, which was granted in November 2020. We also paid Dr. Perera a one-time lump sum cash sign-on bonus of \$11,205, which is subject to repayment by Dr. Perera if his employment with us ceases under certain circumstances prior to December 31, 2020.

Equity Incentive Plans

Prior to our Series A preferred stock financing in October 2020, we did not have our own equity incentive plan and one of our employees was granted options under the Arena 2017 LTIP. We believe that our ability to grant equity-based awards is a valuable and necessary compensation tool that aligns the long-term financial interests of our employees, consultants and directors with the financial interests of our stockholders. In addition, we believe that our ability to grant options and other equity-based awards helps us to attract, retain and motivate employees, consultants and directors, and encourages them to devote their best efforts to our business and financial success. The principal features of our equity incentive plans are summarized below. These summaries are qualified in their entirety by reference to the actual text of the plans, which are filed as exhibits to the registration statement of which this prospectus is a part.

2021 Equity Incentive Plan

Our board of directors adopted our 2021 Plan in _____, and we expect our stockholders to approve our 2021 Plan prior to the completion of this offering. Our 2021 Plan is a successor to and continuation of our 2020 Plan (as described below). Our 2021 Plan will become effective upon the execution and delivery of the underwriting agreement for this offering. The 2021 Plan came into existence upon its adoption by our board of directors, but no grants will be made under the 2021 Plan prior to its effectiveness. Once the 2021 Plan is effective, no further grants will be made under the 2020 Plan.

Awards. Our 2021 Plan provides for the grant of incentive stock options (ISOs) within the meaning of Section 422 of the Code to employees, including employees of any parent or subsidiary, and for the grant of nonstatutory stock options (NSOs) stock appreciation rights, restricted stock awards, restricted stock unit awards, performance awards and other forms of awards to employees, directors and consultants, including employees and consultants of our affiliates.

Authorized shares. Initially, the maximum number of shares of our common stock that may be issued under our 2021 Plan after it becomes effective will not exceed _____ shares of our common stock, which is the sum of (1) _____ new shares, plus (2) an additional number of shares not to exceed _____, consisting of (A) shares that remain available for the issuance of awards under our 2020 Plan as of immediately prior to the

time our 2021 Plan becomes effective and (B) shares of our common stock subject to outstanding stock options or other stock awards granted under our 2020 Plan that, on or after the 2021 Plan becomes effective, terminate or expire prior to exercise or settlement; are not issued because the award is settled in cash; are forfeited because of the failure to vest; or are reacquired or withheld (or not issued) to satisfy a tax withholding obligation or the purchase or exercise price, if any, as such shares become available from time to time. In addition, the number of shares of our common stock reserved for issuance under our 2021 Plan will automatically increase on January 1 of each calendar year, starting on January 1, 2022 (assuming the 2021 Plan becomes effective in 2021) through January 1, 2031, in an amount equal to (i) % of the total number of shares of our common stock outstanding on December 31 of the fiscal year before the date of each automatic increase, or (ii) a lesser number of shares determined by our board of directors prior to the applicable January 1. The maximum number of shares of our common stock that may be issued on the exercise of ISOs under our 2021 Plan is shares.

Shares subject to stock awards granted under our 2021 Plan that expire or terminate without being exercised in full or that are paid out in cash rather than in shares do not reduce the number of shares available for issuance under our 2021 Plan. Shares withheld under a stock award to satisfy the exercise, strike or purchase price of a stock award or to satisfy a tax withholding obligation do not reduce the number of shares available for issuance under our 2021 Plan. If any shares of our common stock issued pursuant to a stock award are forfeited back to or repurchased or reacquired by us (1) because of a failure to meet a contingency or condition required for the vesting of such shares, (2) to satisfy the exercise, strike or purchase price of an award or (3) to satisfy a tax withholding obligation in connection with an award, the shares that are forfeited or repurchased or reacquired will revert to and again become available for issuance under the 2021 Plan. Any shares previously issued which are reacquired in satisfaction of tax withholding obligations or as consideration for the exercise or purchase price of a stock award will again become available for issuance under the 2021 Plan.

Plan administration. Our board of directors, or a duly authorized committee of our board of directors, will administer our 2021 Plan and is referred to as the “plan administrator” herein. Our board of directors may also delegate to one or more of our officers the authority to (1) designate employees (other than officers) to receive specified stock awards and (2) determine the number of shares subject to such stock awards. Under our 2021 Plan, our board of directors has the authority to determine award recipients, grant dates, the numbers and types of stock awards to be granted, the applicable fair market value, and the provisions of each stock award, including the period of exercisability and the vesting schedule applicable to a stock award.

The plan administrator has the power to modify outstanding awards under our 2021 Plan. Subject to the terms of our 2021 Plan, the plan administrator has the authority to reprice any outstanding stock award, cancel and re-grant 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 under stock option agreements adopted by the plan administrator. The plan administrator determines the exercise price for stock options, within the terms and conditions of the 2021 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 2021 Plan vest at the rate specified in the stock option agreement as determined by the plan administrator.

The plan administrator determines the term of stock options granted under the 2021 Plan, up to a maximum of 10 years. Unless the terms of an optionholder’s stock option agreement, or other written agreement between us and the recipient approved by the plan administrator, provide otherwise, if an optionholder’s service relationship with us or any of our affiliates ceases for any reason other than disability, death, or cause, the optionholder may generally exercise any vested options for a period of three months following the cessation of service. This period may be extended in the event that exercise of the option is prohibited by applicable securities laws. If an optionholder’s service relationship with us or any of our affiliates ceases due to 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 18 months following the date of death. If an optionholder's service relationship with us or any of our affiliates ceases due to disability, the optionholder may generally exercise any vested options for a period of 12 months following the cessation of service. In the event of a termination for cause, options generally terminate upon the termination date. 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, or (5) other legal consideration approved by the plan administrator.

Unless the plan administrator provides otherwise, options or stock appreciation rights generally are not transferable except by will or the laws of descent and distribution. Subject to approval of the plan administrator or a duly authorized officer, an option may be transferred pursuant to a domestic relations order, official marital settlement agreement, or other divorce or separation instrument.

Tax limitations on ISOs. 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 award holder 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 parent or subsidiary corporations 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 under 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 that may be acceptable to our board of directors and permissible under applicable law. 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, or other written agreement between us and the recipient approved by the plan administrator, restricted stock unit awards that have not vested will be forfeited once the participant's continuous service ends for any reason.

Restricted stock awards. Restricted stock awards are granted under restricted stock award agreements adopted by the plan administrator. A restricted stock award may be awarded in consideration for cash, check, bank draft or money order, past or future services to us, or any other form of legal consideration that may be acceptable to our board of directors and permissible under applicable law. The plan administrator determines the terms and conditions of restricted stock awards, including vesting and forfeiture terms. If a participant's service relationship with us ends for any reason, we may receive any or all of the shares of common stock held by the participant that have not vested as of the date the participant terminates service with us through a forfeiture condition or a repurchase right.

Stock appreciation rights. Stock appreciation rights are granted under stock appreciation right agreements adopted by the plan administrator. The plan administrator determines the purchase price or 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. A stock appreciation right granted under the 2021 Plan vests at the rate specified in the stock appreciation right agreement as determined by the plan administrator. Stock appreciation rights may be settled in cash or shares of common stock or in any other form of payment as determined by the Board and specified in the stock appreciation right agreement.

The plan administrator determines the term of stock appreciation rights granted under the 2021 Plan, up to a maximum of 10 years. 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. This period 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 2021 Plan permits the grant of performance awards that may be settled in stock, cash or other property. Performance awards may be structured so that the stock or cash will be issued or paid only following the achievement of certain pre-established performance goals during a designated performance period. Performance awards that are settled in cash or other property are not required to be valued in whole or in part by reference to, or otherwise based on, the common stock.

The performance goals may be based on any measure of performance selected by the board of directors. The performance goals may be based on company-wide performance or performance of one or more business units, divisions, affiliates, or business segments, and may be either absolute or relative to the performance of one or more comparable companies or the performance of one or more relevant indices. Unless specified otherwise by the board of directors at the time the performance award is granted, the board 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 items that are "unusual" in nature or occur "infrequently" as determined under generally accepted accounting principles; (6) to exclude the dilutive effects of acquisitions or joint ventures; (7) to assume that any portion of our business which is divested 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; and (11) to exclude the goodwill and intangible asset impairment charges that are required to be recorded under generally accepted accounting principles.

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 (or cash equivalent) and all other terms and conditions of such awards.

Non-employee director compensation limit. The aggregate value of all compensation granted or paid to any non-employee director with respect to any calendar year, including awards granted and cash fees paid by us to such non-employee director, will not exceed \$ _____ in total value; provided that such amount will increase to _____ for the first year for newly appointed or elected non-employee directors. *Changes to capital structure.* In the event there is a specified type of change in our capital structure, such as a stock split, reverse stock split, or recapitalization, appropriate adjustments will be made to (1) the class and maximum number of shares reserved for issuance under the 2021 Plan, (2) the class and maximum number of shares by which the share reserve may increase automatically each year, (3) the class and maximum number of shares that may be issued on the exercise of ISOs, and (4) the class and number of shares and exercise price, strike price, or purchase price, if applicable, of all outstanding stock awards.

Corporate transactions. The following applies to stock awards under the 2021 Plan in the event of a corporate transaction (as defined in the 2021 Plan), unless otherwise provided in a participant's stock award agreement or other written agreement with us or one of our affiliates or unless otherwise expressly provided by the plan administrator at the time of grant.

In the event of a corporate transaction, any stock awards outstanding under the 2021 Plan may be assumed, continued or substituted for by any surviving or acquiring corporation (or its parent company), and any reacquisition or repurchase rights held by us with respect to the stock award may be assigned to the successor (or its parent company). If the surviving or acquiring corporation (or its parent company) does not assume, continue or substitute for such stock awards, then (i) with respect to any such stock awards that are held by participants whose continuous service has not terminated prior to the effective time of the corporate transaction, or current participants, the vesting (and exercisability, if applicable) of such stock awards will be accelerated in full to a date prior to the effective time of the corporate transaction (contingent upon the effectiveness of the corporate transaction), and such stock awards will terminate if not exercised (if applicable) at or prior to the effective time of the corporate transaction, and any reacquisition or repurchase rights held by us with respect to such stock awards will lapse (contingent upon the effectiveness of the corporate transaction), and (ii) any such stock awards that are held by persons other than current participants will terminate if not exercised (if applicable) prior to the effective time of the corporate transaction, except that any reacquisition or repurchase rights held by us with respect to such stock awards will not terminate and may continue to be exercised notwithstanding the corporate transaction.

In the event a stock award will terminate if not exercised prior to the effective time of a corporate transaction, the plan administrator may provide, in its sole discretion, that the holder of such stock award may not exercise such stock award but instead will receive a payment equal in value to the excess (if any) of (i) the per share amount payable to holders of common stock in connection with the corporate transaction, over (ii) any per share exercise price payable by such holder, if applicable. In addition, any escrow, holdback, earn out or similar provisions in the definitive agreement for the corporate transaction may apply to such payment to the same extent and in the same manner as such provisions apply to the holders of common stock.

Change in control. Awards granted under the 2021 Plan may be subject to acceleration of vesting and exercisability upon or after a change in control (as defined in the 2021 Plan) as may be provided in the applicable stock award agreement or in any other written agreement between us or any affiliate and the participant, but in the absence of such provision, no such acceleration will automatically occur.

Plan amendment or termination. Our board of directors has the authority to amend, suspend, or terminate our 2021 Plan, provided that such action does not materially impair the existing rights of any participant without such participant's written consent. Certain material amendments also require the approval of our stockholders. No ISOs may be granted after the tenth anniversary of the date our board of directors adopts our 2021 Plan. No stock awards may be granted under our 2021 Plan while it is suspended or after it is terminated.

2020 Equity Incentive Plan

Our board of directors and stockholders adopted our 2020 Equity Incentive Plan (2020 Plan) in October 2020. As of December 31, 2020, there were shares remaining available for the future grant of stock awards under our 2020 Plan. As of December 31, 2020, there were outstanding stock options covering a total of shares of our common stock that were granted under our 2020 Plan. Any shares of common stock remaining available for issuance under the 2020 Plan upon the 2021 Plan's effectiveness in connection with this offering will become available for issuance under the 2021 Plan.

Stock awards. Our 2020 Plan provides for the grant of ISOs within the meaning of Section 422 of the Code to employees, including employees of any parent or subsidiary, and for the grant of NSOs, stock appreciation rights, restricted stock, restricted stock units and other forms of stock awards to employees, directors

and consultants, including employees and consultants of our affiliates. To date, we have only granted stock options under the 2020 Plan.

Authorized shares. Subject to certain capitalization adjustments, the aggregate number of shares of common stock that may be issued pursuant to stock awards under the 2020 Plan will not exceed 1,717,000 shares. The maximum number of shares of our common stock that may be issued pursuant to the exercise of ISOs under our 2020 Plan is 5,151,000 shares.

Shares subject to stock awards granted under our 2020 Plan that expire or otherwise terminate without being exercised in full or that are settled in cash rather than in shares do not reduce or otherwise offset the number of shares available for issuance under our 2020 Plan (or, following its effectiveness, the 2020 Plan). Additionally, if any shares issued pursuant to a stock award are forfeited back to or repurchased for any reason, including because of the failure to meet a contingency or condition required to vest, then the shares that are forfeited or repurchased will revert to and again become available for issuance under the 2020 Plan (or, following its effectiveness, the 2021 Plan). This includes shares used to pay the exercise price of a stock award or to satisfy the tax withholding obligations related to a stock award.

Plan administration. Our board of directors, or a duly authorized committee of our board of directors to which the board delegates its administrative authority, will administer our 2020 Plan and is referred to as the “plan administrator” herein. The plan administrator may also delegate to one or more of our officers the authority to (1) designate employees (other than officers) to receive specified options and stock appreciation rights (and to the extent permitted by applicable law, other stock awards) and (2) determine the number of shares subject to such stock awards; provided, however, that the board resolutions regarding such delegation must specify the total number of shares that may be subject to awards granted by such officer, and provided further, that no officer may grant an award under the 2020 Plan to himself or herself. Under our 2020 Plan, the plan administrator has the authority to, among other things, determine award recipients, dates of grant, the numbers and types of stock awards to be granted, the applicable fair market value and the provisions of each stock award, including the period of their exercisability and the vesting schedule applicable to a stock award, to construe and interpret the 2020 Plan and awards granted thereunder (and to establish, amend and revoke any rules and regulations for the administration of the 2020 Plan and any such awards), or to accelerate awards.

Under the 2020 Plan, the plan administrator also generally has the authority to effect, with the consent of any adversely affected participant, (A) the reduction of the exercise, purchase, or strike price of any outstanding award; (B) the cancellation of any outstanding award and the grant in substitution therefor of other stock awards, cash, or other consideration; or (C) any other action that is treated as a repricing under generally accepted accounting principles.

ISOs and NSOs are granted under stock option agreements adopted by the plan administrator. The plan administrator determines the exercise price for stock options, within the terms and conditions of the 2020 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 (or 110% of the fair market value for certain major stockholders). Options granted under the 2020 Plan vest at the rate specified in the stock option agreement as determined by the plan administrator.

The plan administrator determines the term of stock options granted under the 2020 Plan, up to a maximum of 10 years (or five years, for certain major stockholders). If an optionholder’s service relationship with us or any of our affiliates ceases for any reason other than disability, death or cause, the optionholder may generally exercise any vested options for a period of up to three months following the cessation of service. This period may be extended in the event that exercise of the option 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 death, or an optionholder dies within a certain period following cessation of service, the optionholder or a beneficiary may

[Table of Contents](#)

generally exercise any vested options for a period of up to 18 months following the date of death. If an optionholder's service relationship with us or any of our affiliates ceases due to disability, the optionholder may generally exercise any vested options for a period of up to 12 months following the cessation of service. In the event of a termination for cause, options generally terminate upon the termination date. 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, electronic funds transfer or money order payable to us, (2) subject to company and/or Board consent and provided that at the time of exercise the common stock is publicly traded, a broker-assisted cashless exercise, (3) subject to company and/or Board consent and provided that at the time of exercise the common stock is publicly traded, the tender of shares of our common stock previously owned by the optionholder, (4) subject to company and/or Board consent at the time of exercise, a net exercise of the option if it is an NSO, (5) a deferred payment arrangement, or (6) other legal consideration approved by the plan administrator.

Unless the plan administrator provides otherwise, options generally are not transferable except by will or the laws of descent and distribution. Subject to approval of the plan administrator or a duly authorized officer in each case, (i) an option may be transferred pursuant to a domestic relations order, official marital settlement agreement, or other divorce or separation instrument and (ii) an optionholder may designate a beneficiary who may exercise the option following the optionholder's death.

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.

Changes to capital structure. In the event of a "capitalization adjustment," the board of directors, in its discretion, will make appropriate and proportionate adjustments to (1) the class and maximum number of shares reserved for issuance under the 2020 Plan, (2) the class and maximum number of shares that may be issued on the exercise of ISOs, and (3) the class and number of shares and exercise price, strike price, or purchase price, if applicable, of all outstanding stock awards. For purposes of the 2020 Plan, "capitalization adjustment" generally means any change that is made in (or other events occurring with respect to) our common stock subject to the 2020 Plan or any award without the receipt of consideration by us through merger, consolidation, reorganization, recapitalization, reincorporation, stock dividend, dividend in property other than cash, large non-recurring cash dividend, stock split, reverse stock split, liquidating dividend, combination or exchange of shares, change in corporate structure, or other similar equity restructuring transaction (within the meaning of Statement of Financial Accounting Standards Board ASC Topic 718).

Corporate transactions. Our 2020 Plan provides that in the event of a "corporate transaction," unless otherwise provided in an award agreement or other written agreement between us and the award holder, the plan administrator may take one or more of the following actions with respect to such stock awards:

- arrange for the assumption, continuation, or substitution of a stock award by a surviving or acquiring corporation;
- arrange for the assignment of any reacquisition or repurchase rights held by us to the surviving or acquiring corporation;
- accelerate the vesting, in whole or in part, of the stock award and provide for its termination if not exercised (if applicable) at or before the effective time of the transaction;

- arrange for the lapse, in whole or in part, of any reacquisition or repurchase rights held by us;
- cancel or arrange for the cancellation of the stock award, to the extent not vested or not exercised before the effective time of the transaction, in exchange for such cash consideration (including no consideration) as our board of directors, in its sole discretion, may consider appropriate; and
- make a payment equal to the excess, if any, of (A) the value of the property the participant would have received on exercise of the award immediately before the effective time of the transaction, over (B) any exercise price payable by the participant in connection with the exercise.

The plan administrator is not obligated to treat all stock awards or portions of stock awards in the same manner and is not obligated to treat all participants in the same manner.

Under the 2020 Plan, a “corporate transaction” is generally defined as the consummation, in a single transaction or in a series of related transactions, of: (1) a sale of all or substantially all of our assets, (2) the sale or disposition of more than 50% of our outstanding securities, (3) a merger or consolidation where we do not survive the transaction, or (4) a merger or consolidation where we do survive the transaction but the shares of our common stock outstanding immediately before such transaction are converted or exchanged into other property by virtue of the transaction.

Change in control. A stock award may be subject to additional acceleration of vesting and exercisability upon or after a change in control as may be provided in an applicable award agreement or other written agreement, but in the absence of such provision, no such acceleration will occur. We have a form of option grant agreement outstanding that provides for full acceleration of vesting in the event of either a termination without cause or a resignation for good reason upon or within 3 months prior to, or 12 months after, the effective time of a change in control. Under the 2020 Plan, a “change in control” is generally defined as (1) certain acquisitions by a person or company of more than 50% of the combined voting power of our then outstanding stock, (2) a merger, consolidation or similar transaction in which our stockholders immediately before the transaction do not own, directly or indirectly, more than 50% of the combined voting power of the surviving entity (or the parent of the surviving entity) in substantially the same proportions as their ownership immediately prior to such transaction, or (3) a sale, lease, exclusive license or other disposition of all or substantially all of our consolidated assets other than to an entity more than 50% of the combined voting power of which is owned by our stockholders in substantially the same proportions as their ownership of our outstanding voting securities immediately prior to such transaction.

Plan Amendment or Termination. Our board of directors has the authority to amend, suspend, or terminate our 2020 Plan, provided that such action does not impair the existing rights of any participant without such participant’s written consent. Certain material amendments also require the approval of our stockholders. Unless terminated sooner, the 2020 Plan will automatically terminate on October 26, 2030. No stock awards may be granted under our 2020 Plan while it is suspended or after it is terminated. Once the 2021 Plan is effective, no further grants will be made under the 2020 Plan.

2021 Employee Stock Purchase Plan

Our board of directors adopted our 2021 Employee Stock Purchase Plan (ESPP) in _____ and we expect our stockholders to approve our ESPP prior to the completion of this offering. The ESPP will become effective immediately prior to and contingent upon the date of the underwriting agreement related to this offering. The purpose of the ESPP is to secure the services of new employees, to retain the services of existing employees, and to provide incentives for such individuals to exert maximum efforts toward our success and that of our affiliates. The ESPP includes two components. One component is designed to allow eligible U.S. employees to purchase our common stock in a manner that may qualify for favorable tax treatment under Section 423 of the Code. In addition, purchase rights may be granted under a component that does not qualify for such favorable tax treatment because of deviations necessary to permit participation by eligible employees who are foreign nationals or employed outside of the United States while complying with applicable foreign laws.

Share reserve. Following this offering, the ESPP authorizes the issuance of _____ shares of our common stock under purchase rights granted to our employees or to employees of any of our designated affiliates. The number of shares of our common stock reserved for issuance will automatically increase on January 1 of each calendar year, beginning on January 1, 2022 (assuming the ESPP becomes effective in 2021) through January 1, 2031, by the lesser of (1) _____ % of the total number of shares of our common stock outstanding on the last day of the fiscal year before the date of the automatic increase, and (2) _____ shares; provided that before the date of any such increase, our board of directors may determine that such increase will be less than the amount set forth in clauses (1) and (2). As of the date hereof, no shares of our common stock have been purchased under the ESPP.

Administration. Our board of directors administers the ESPP and may delegate its authority to administer the ESPP to our compensation committee. The ESPP is implemented through a series of offerings under which eligible employees are granted purchase rights to purchase shares of our common stock on specified dates during such offerings. Under the ESPP, we may specify offerings with durations of not more than 27 months, and may specify shorter purchase periods within each offering. Each offering will have one or more purchase dates on which shares of our common stock will be purchased for employees participating in the offering. An offering under the ESPP may be terminated under certain circumstances.

Payroll deductions. Generally, all regular employees, including executive officers, employed by us or by any of our designated affiliates, may participate in the ESPP and may contribute, normally through payroll deductions, up to 15% of their earnings (as defined in the ESPP) for the purchase of our common stock under the ESPP. Unless otherwise determined by our board of directors, common stock will be purchased for the accounts of employees participating in the ESPP at a price per share that is at least the lesser of (1) 85% of the fair market value of a share of our common stock on the first date of an offering, or (2) 85% of the fair market value of a share of our common stock on the date of purchase.

Limitations. Employees may have to satisfy one or more of the following service requirements before participating in the ESPP, as determined by our board of directors, including: (1) being customarily employed for more than 20 hours per week, (2) being customarily employed for more than five months per calendar year, or (3) continuous employment with us or one of our affiliates for a period of time (not to exceed two years). No employee may purchase shares under the ESPP at a rate in excess of \$25,000 worth of our common stock based on the fair market value per share of our common stock at the beginning of an offering for each calendar year such a purchase right is outstanding. Finally, no employee will be eligible for the grant of any purchase rights under the ESPP if immediately after such rights are granted, such employee has voting power over 5% or more of our outstanding capital stock measured by vote or value under Section 424(d) of the Code.

Changes to capital structure. In the event that there occurs a change in our capital structure through such actions as a stock split, merger, consolidation, reorganization, recapitalization, reincorporation, stock dividend, dividend in property other than cash, large nonrecurring cash dividend, liquidating dividend, combination of shares, exchange of shares, change in corporate structure, or similar transaction, the board of directors will make appropriate adjustments to: (1) the class(es) and maximum number of shares reserved under the ESPP, (2) the class(es) and maximum number of shares by which the share reserve may increase automatically each year, (3) the class(es) and number of shares subject to and purchase price applicable to outstanding offerings and purchase rights, and (4) the class(es) and number of shares that are subject to purchase limits under ongoing offerings.

Corporate transactions. In the event of certain significant corporate transactions, any then-outstanding rights to purchase our stock under the ESPP may be assumed, continued, or substituted for by any surviving or acquiring entity (or its parent company). If the surviving or acquiring entity (or its parent company) elects not to assume, continue, or substitute for such purchase rights, then the participants' accumulated payroll contributions will be used to purchase shares of our common stock within 10 business days before such corporate transaction, and such purchase rights will terminate immediately after such purchase.

[Table of Contents](#)

Under the ESPP, a corporate transaction is generally the consummation of: (1) a sale of all or substantially all of our assets, (2) the sale or disposition of more than 50% of our outstanding securities, (3) a merger or consolidation where we do not survive the transaction, and (4) a merger or consolidation where we do survive the transaction but the shares of our common stock outstanding immediately before such transaction are converted or exchanged into other property by virtue of the transaction.

ESPP amendment or termination. Our board of directors has the authority to amend or terminate our ESPP, provided that except in certain circumstances such amendment or termination may not materially impair any outstanding purchase rights without the holder's consent. We will obtain stockholder approval of any amendment to our ESPP as required by applicable law or listing requirements.

Limitations on Liability and Indemnification

On the closing of this offering, our amended and restated certificate of incorporation will contain provisions that limit the liability of our current and former directors for monetary damages to the fullest extent permitted by Delaware law. Delaware law provides that directors of a corporation will not be personally liable for monetary damages for any breach of fiduciary duties as directors, except liability for:

- any breach of the director's duty of loyalty to the corporation or its stockholders;
- any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- unlawful payments of dividends or unlawful stock repurchases or redemptions; or
- any transaction from which the director derived an improper personal benefit.

Such limitation of liability does not apply to liabilities arising under federal securities laws and does not affect the availability of equitable remedies such as injunctive relief or rescission.

Our amended and restated certificate of incorporation will authorize us to indemnify our directors, officers, employees and other agents to the fullest extent permitted by Delaware law. Our amended and restated bylaws will provide that we are required to indemnify our directors and officers to the fullest extent permitted by Delaware law and may indemnify our other employees and agents. Our amended and restated bylaws will also provide that, on satisfaction of certain conditions, we will advance expenses incurred by a director or officer in advance of the final disposition of any action or proceeding, and permit us to secure insurance on behalf of any officer, director, employee, or other agent for any liability arising out of his or her actions in that capacity regardless of whether we would otherwise be permitted to indemnify him or her under the provisions of Delaware law. We have entered and expect to continue to enter into agreements to indemnify our directors, executive officers and other employees as determined by the board of directors. With certain exceptions, these agreements provide for indemnification for related expenses including attorneys' fees, judgments, fines and settlement amounts incurred by any of these individuals in any action or proceeding.

We believe that these amended and restated certificate of incorporation and amended and restated bylaw provisions and indemnification agreements are necessary to attract and retain qualified persons as directors and officers. We also maintain customary directors' and officers' liability insurance.

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 our directors for breach of their fiduciary duty. They may also reduce the likelihood of derivative litigation against our directors and officers, even though an action, if successful, might benefit us and other stockholders. Further, a stockholder's investment may be adversely affected to the extent that we pay the costs of settlement and damage awards against directors and officers as required by these indemnification provisions.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted for directors, executive officers, or persons controlling us, we have been informed that, in the opinion of the SEC, such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

CERTAIN RELATIONSHIPS AND RELATED PERSON TRANSACTIONS

The following includes a summary of transactions since January 3, 2020, the date of our incorporation, to which we have been a party in which the amount involved exceeded \$120,000, and in which any of our directors, director nominee, 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 Compensation.” We also describe below certain other transactions with our directors, executive officers and stockholders.

Our Relationship with Arena Pharmaceuticals, Inc.

Prior to October 2020, we were a wholly-owned subsidiary of Arena. As of December 31, 2020, Arena held approximately % of our outstanding shares of common stock. Immediately following the completion of this offering, Arena will own % of our outstanding shares of common stock (or approximately % of our common stock, if the underwriters exercise in full their option to purchase additional shares of our common stock in this offering), and as a result, Arena will continue to have significant influence over our business, including pursuant to the agreements described below. The agreements summarized below are filed as exhibits to the registration statement of which this prospectus is a part, and the summaries of these agreements set forth the terms of the agreements that we believe are material. These summaries are qualified in their entirety by reference to the full text of such agreements.

License Agreement

In October 2020, we entered into the Arena License Agreement, pursuant to which we obtained an exclusive, worldwide license of certain intellectual property owned by Arena. For a more detailed description of the Arena License Agreement, see “Business—License Agreement with Arena.”

Royalty Purchase Agreement

In October 2020, we entered into a Royalty Purchase Agreement with Arena and 356 Royalty Inc., a wholly owned subsidiary of Arena (356 Royalty), pursuant to which we purchased the right to receive all milestone payments, royalties, interest, and other payments relating to net sales of lorcaserin, owed or otherwise payable to 356 Royalty by Eisai, pursuant to the Transaction Agreement by and among 356 Royalty and Eisai, for the sum of approximately \$121,000. Lorcaserin is currently in a Phase 3 clinical trial for Dravet syndrome.

Services Agreement

In October 2020, we entered into a Services Agreement with Arena under which Arena agreed to perform certain research and development services, general administrative services, management services and other mutually agreed services for us. For a more detailed description of the Services Agreement, see “Business—Services Agreement with Arena.”

Series A Convertible Preferred Stock Financing

In October 2020, we entered into a Series A preferred stock purchase agreement with various investors, pursuant to which we sold and issued an aggregate of 5,600,000 shares of our Series A convertible preferred stock, (Series A preferred stock), at a purchase price of \$10.00 per share, for aggregate gross proceeds of \$56.0 million (Series A financing).

[Table of Contents](#)

The following table summarizes purchases of shares of our Series A preferred stock by holders of more than 5% of our capital stock and entities affiliated with our executive officers and members of our board of directors.

Participants ⁽¹⁾	Shares of Series A Convertible Preferred Stock Purchased	Aggregate Purchase Price
Zone II Healthcare Holdings, LLC	1,500,000	\$ 15,000,000
Entities affiliated with Cormorant Private Healthcare Fund III, LP ⁽²⁾	1,200,000	\$ 12,000,000
Entities affiliated with T. Rowe Price Associates, Inc. ⁽³⁾	1,200,000	\$ 12,000,000
HBM Healthcare Investments (Cayman) Ltd. ⁽⁴⁾	1,000,000	\$ 10,000,000
Arena Pharmaceuticals, Inc. ⁽⁵⁾	100,000	\$ 1,000,000

- (1) Additional details regarding these stockholders and their equity holdings are included in this prospectus under the caption “Principal Stockholders.”
- (2) Consists of (i) 960,480 shares of Series A preferred stock purchased by Cormorant Private Healthcare Fund III, LP, (ii) 223,560 shares of Series A preferred stock purchased by Cormorant Global Healthcare Master Fund, LP and (iii) 15,960 shares of Series A preferred stock purchased by CRMA SPV, L.P.
- (3) Consists of (i) 626,880 shares of Series A preferred stock purchased by T. Rowe New Horizons Fund Inc., (ii) 415,643 shares of Series A preferred stock purchased by T. Rowe Price Health Sciences Fund, Inc., (iii) 78,874 shares of Series A preferred stock purchased by T. Rowe Price New Horizons Trust, (iv) 29,190 shares of Series A preferred stock purchased by TD Mutual Funds—TD Health Sciences Fund, (v) 23,868 shares of Series A preferred stock purchased by VALIC Company I—Health Sciences Fund, (vi) 18,712 shares of Series A preferred stock purchased by T. Rowe Price Health Sciences Portfolio, (vii) 4,317 shares of Series A preferred stock purchased by T. Rowe Price U.S. Equities Trust and (viii) 2,516 shares of Series A preferred stock purchased by MassMutual Select Funds—MassMutual Select T. Rowe Price Small and Mid Cap Blend Fund.
- (4) Dr. Leo, a member of our board of directors, is an investment advisor to HBM Partners AG. HBM Partners AG acts as an investment advisor to HBM Healthcare Investments (Cayman) Ltd.
- (5) Mr. Aurentz and Ms. Stelzer, each a member of our board of directors, are employed at Arena Pharmaceuticals, Inc.

Investors’ Rights Agreement

In October 2020, we entered into an Investors’ Rights Agreement (Rights Agreement) with certain holders of our capital stock, including entities affiliated with Zone II Healthcare Holdings, LLC, Cormorant Private Healthcare Fund III, LP, T. Rowe Price Associates, Inc., HBM Healthcare Investments (Cayman) Ltd. and Arena Pharmaceuticals, Inc.

The Rights Agreement grants certain rights to the holders thereof, including certain registration rights with respect to the registrable securities held by them. See “Description of Capital Stock—Registration Rights” for additional information. In addition, the Rights Agreement imposes certain affirmative obligations on us, including our obligation to, among other things, (i) grant each holder who holds at least \$3.0 million of our Series A preferred stock (Major Holders) a right of first offer with respect to future sales of our equity, excluding the shares to be offered and sold in this offering and (ii) grant certain information and inspection rights to such Major Holders. Each of these obligations will terminate in connection with the closing of this offering.

Voting Agreement

In October 2020, we entered into a Voting Agreement (Voting Agreement) with certain holders of our capital stock, including entities affiliated with Zone II Healthcare Holdings, LLC, Cormorant Private Healthcare Fund III, LP, T. Rowe Price Associates, Inc., HBM Healthcare Investments (Cayman) Ltd. and Arena Pharmaceuticals, Inc., and including certain members of, and affiliates of, our directors.

Pursuant to the Voting Agreement, HBM Healthcare Investments (Cayman) Ltd. has the right to designate one member to be elected to our board of directors and Arena Pharmaceuticals, Inc. has the right to designate two members to be elected to our board of directors. See “Management—Composition of our Board of Directors.”

The Voting Agreement will terminate by its terms in connection with the closing of this offering and none of our stockholders will have any continuing rights regarding the election or designation of members of our board of directors following this offering.

Right of First Refusal and Co-Sale Agreement

In October 2020, we entered into a Right of First Refusal and Co-Sale Agreement (Co-Sale Agreement) with certain holders of our capital stock, including entities affiliated with Zone II Healthcare Holdings, LLC, Cormorant Private Healthcare Fund III, LP, T. Rowe Price Associates, Inc., HBM Healthcare Investments (Cayman) Ltd. and Arena Pharmaceuticals, Inc., and including certain members of, and affiliates of, our directors.

Pursuant to the Co-Sale Agreement, we have a right of first refusal in respect of certain sales of securities by certain holders of our common stock, including one of our executive officers and directors. To the extent we do not exercise such right in full, the holders of our convertible preferred stock are granted certain rights of first refusal and co-sale in respect of such sale. The Co-Sale Agreement will terminate in connection with the closing of this offering.

Indemnification Agreements

Our amended and restated certificate of incorporation will contain provisions limiting the liability of directors, and our amended and restated bylaws will provide that we will indemnify each of our directors and officers to the fullest extent permitted under Delaware law. Our amended and restated certificate of incorporation and amended and restated bylaws will also provide our board of directors with discretion to indemnify our employees and other agents when determined appropriate by the board. In addition, we have entered into or intend to enter into an indemnification agreement with each of our directors and executive officers, which will require us to indemnify them. For more information regarding these agreements, see “Executive Compensation—Limitations on Liability and Indemnification Matters.”

Policies and Procedures for Transactions with Related Persons

Prior to closing of this offering, we intend to adopt a written policy that our executive officers, directors, nominees for election as a director, beneficial owners of more than 5% of any class of our common stock and any members of the immediate family of any of the foregoing persons are not permitted to enter into a related person transaction with us without the approval or ratification of our board of directors or our audit committee. Any request for us to enter into a transaction with an executive officer, director, nominee for election as a director, beneficial owner of more than 5% of any class of our common stock, or any member of the immediate family of any of the foregoing persons, in which the amount involved exceeds \$120,000 (or, if less, 1% of the average of our total assets in a fiscal year) and such person would have a direct or indirect interest, must be presented to our board of directors or our audit committee for review, consideration and approval. In approving or rejecting any such proposal, our board of directors or our audit committee is to consider the material facts of the transaction, including whether the transaction is on terms no less favorable than terms generally available to an unaffiliated third party under the same or similar circumstances and the extent of the related person’s interest in the transaction.

PRINCIPAL STOCKHOLDERS

The following table sets forth information regarding beneficial ownership of our capital stock as of November 1, 2020 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 and director nominee;
- each of our named executive officers; and
- all of our current executive officers and directors as a group.

We have determined beneficial ownership in accordance with the rules and regulations of the SEC, and the information is not necessarily indicative of beneficial ownership for any other purpose. In computing the number of shares beneficially owned by a person and the percentage ownership of such person, we deemed to be outstanding all shares subject to options held by the person that are currently exercisable or exercisable as of December 31, 2020, which is 60 days after November 1, 2020. These shares are deemed to be outstanding and beneficially owned by the person holding such options 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. Except as indicated by the footnotes below, we believe, based on information furnished to us, that the persons and entities named in the table below have sole voting and sole investment power with respect to all shares that they beneficially own, subject to applicable community property laws.

Applicable percentage ownership before the offering is based on 8,635,500 shares of our common stock outstanding as of November 1, 2020, after giving effect to the automatic conversion of all outstanding shares of our Series A preferred stock into 5,600,000 shares of our common stock in connection with the closing of this offering.

Applicable percentage ownership after the offering is based on shares of common stock outstanding immediately after the closing of this offering, after giving effect to the (i) automatic conversion of all outstanding shares of our Series A preferred stock into 5,600,000 shares of our common stock in connection with the closing of this offering and (ii) the sale of shares of common stock in this offering.

Table of Contents

Unless otherwise indicated, the address for each beneficial owner listed in the table below is c/o Longboard Pharmaceuticals, Inc., 6154 Nancy Ridge Drive, San Diego, California 92121.

Name of Beneficial Owner	Number of Shares Beneficially Owned	Percentage of Shares Beneficially Owned	
		Before Offering	After Offering
Greater than 5% Holders:			
Zone II Healthcare Holdings, LLC ⁽¹⁾	1,500,000	17.4%	%
Entities affiliated with Cormorant Asset Management, LP ⁽²⁾	1,200,000	13.9	
Entities affiliated with T. Rowe Price Associates, Inc. ⁽³⁾	1,200,000	13.9	
HBM Healthcare Investments (Cayman) Ltd. ⁽⁴⁾	1,000,000	11.6	
Arena Pharmaceuticals, Inc. ⁽⁵⁾	2,883,000	33.4	
Named Executive Officers and Directors:			
Amit D. Munshi	—	*	
Kevin R. Lind ⁽⁶⁾	505,000	5.7	
Vincent E. Aurentz	—	*	
Chandra P. Leo, M.D.	—	*	
Phillip M. Schneider	—	*	
Paul J. Sekhri	—	*	
Laurie D. Stelzer	—	*	
All current executive officers and directors as a group (7 persons) ⁽⁷⁾	505,000	5.7%	%

* Represents beneficial ownership of less than 1%.

- (1) Consists of 1,500,000 shares of common stock issuable upon conversion of our Series A preferred stock held by Zone II Healthcare Holdings, LLC (Zone II). Farallon Capital Management, L.L.C. (FCM), as the manager of Zone II, may be deemed to beneficially own such shares of common stock issuable to Zone II. Each of Philip D. Dreyfuss, Michael B. Fisch, Richard B. Fried, David T. Kim, Michael G. Linn, Rajiv A. Patel, Thomas G. Roberts, Jr., William Seybold, Andrew J.M. Spokes, John R. Warren and Mark D. Wehrly (the Managing Members), as a senior managing member or managing member, as the case may be, of FCM, in each case with the power to exercise investment discretion, may be deemed to beneficially own such shares of common stock issuable to Zone II. Each of FCM and the Managing Members disclaims beneficial ownership of any such shares of common stock. The address of Zone II Healthcare Holdings, LLC is c/o Farallon Capital Management, L.L.C. One Maritime Plaza, Suite 2100, San Francisco, California 94111.
- (2) Consists of (i) 960,480 shares of common stock issuable upon conversion of our Series A preferred stock held by Cormorant Private Healthcare Fund III, LP (Cormorant Fund III), (ii) 223,560 shares of common stock issuable upon conversion of the Series A preferred stock held by Cormorant Global Healthcare Master Fund, LP (Cormorant Master Fund) and (iii) 15,960 shares of common stock issuable upon conversion of the Series A preferred stock held by CRMA SPV, L.P. (CRMA). Cormorant Global Healthcare GP, LLC (GlobalGP), is the general partner of Cormorant Master Fund, and Cormorant Private Healthcare III GP, LLC (Private GP III) is the general partner of Cormorant Fund III. Bihua Chen serves as the managing member of Global GP and Private GP III, and as the general partner of Cormorant Asset Management, LP (Cormorant). Cormorant serves as the investment manager to Cormorant Fund III, Cormorant Master Fund and CRMA. Ms. Chen has sole voting and investment control over the shares held by the Cormorant Master Fund, Cormorant Fund III and CRMA. The address for each of the entities is 200 Clarendon Street, 52nd Floor, Boston Massachusetts 02116.
- (3) Consists of (i) 626,880 shares of common stock issuable upon conversion of our Series A preferred stock held by T. Rowe New Horizons Fund Inc., (ii) 415,643 shares of common stock issuable upon conversion of our Series A preferred stock held by T. Rowe Price Health Sciences Fund, Inc., (iii) 78,874 shares of common stock issuable upon conversion of our Series A preferred stock held by T. Rowe Price New Horizons Trust, (iv) 29,190 shares of common stock issuable upon conversion of our Series A preferred stock held by TD Mutual Funds – TD Health Sciences Fund, (v) 23,868 shares of common stock issuable upon conversion of our Series A preferred stock held by VALIC Company I—Health Sciences Fund, (vi) 18,712 shares of common stock issuable upon conversion of our Series A preferred stock held by T. Rowe Price Health Sciences Portfolio, (vii) 4,317 shares of common stock issuable upon conversion of our Series A preferred stock held by T. Rowe Price U.S. Equities Trust and (viii) 2,516 shares of common stock issuable upon conversion of our Series A preferred stock held by MassMutual Select Funds—MassMutual Select T. Rowe Price Small and Mid Cap

Table of Contents

Blend Fund. The foregoing accounts are advised or sub-advised by T. Rowe Price Associates, Inc. (T. Rowe Price) a registered investment adviser. T. Rowe Price serves as investment adviser or subadviser, as applicable, with power to direct investments and/or sole power to vote the securities owned by the accounts (with the exception of one subadvisory fund that retains its own voting authority). Although T. Rowe Price may be deemed to be the beneficial owner of all the shares listed, T. Rowe Price expressly disclaims beneficial ownership of such securities. T. Rowe Price Investment Services, Inc. (TRPIS), a registered broker-dealer (and member of the Financial Industry Regulatory Authority, Inc.), is a subsidiary of T. Rowe Price, the investment adviser or subadviser, as applicable, to the accounts listed above. TRPIS was formed primarily for the limited purpose of acting as the principal underwriter and distributor of shares of the funds in the T. Rowe Price mutual fund family. TRPIS does not engage in underwriting or market-making activities involving individual securities. T. Rowe Price is the wholly owned subsidiary of T. Rowe Price Group, Inc., which is a publicly traded financial services holding company. The address of the entities affiliated with T. Rowe Price is 100 East Pratt Street, Baltimore, Maryland 21202.

- (4) Consists of 1,000,000 shares of common stock issuable upon conversion of our Series A preferred stock held by HBM Healthcare Investments (Cayman) Ltd. The board of directors of HBM Healthcare Investments (Cayman) Ltd. has sole voting and investment power with respect to the shares held by such entity. The board of directors of HBM Healthcare Investments (Cayman) Ltd. is comprised of Jean-Marc Lesieur, Richard Coles, Sophia Harris, Dr. Andreas Wicki, Paul Woodhouse and Mark Kronenfeld, none of whom has individual voting or investment power with respect to such shares, and each disclaims beneficial ownership of such shares except to the extent of any pecuniary interest therein. Dr. Leo, a member of our board of directors, is an Investment Advisor at HBM Partners AG, which acts as an investment advisor to HBM Healthcare Investments (Cayman) Ltd. Dr. Leo has no voting or investment power over the shares held by HBM Healthcare Investments (Cayman) Ltd. and disclaims beneficial ownership of such shares. The address of HBM Healthcare Investments (Cayman) Ltd. is Governors Square, Suite No. 4-212-2, 23 Lime Tree Bay Avenue West Bay Grand Cayman, Cayman Islands.
- (5) Consists of (i) 2,783,000 shares of common stock held by Arena and (ii) 100,000 shares of common stock issuable upon conversion of our Series A preferred stock held by Arena. Mr. Munshi, our former President and Chief Executive Officer, and Mr. Aurentz and Ms. Stelzer, each a member of our board of directors, are employed at Arena Pharmaceuticals, Inc.
- (6) Consists of (i) 252,500 shares of common stock held by Mr. Lind and (ii) 252,500 shares of common stock subject to options held by Mr. Lind that are exercisable within 60 days of November 1, 2020.
- (7) Consists of the shares described in notes 4 and 6 above.

DESCRIPTION OF CAPITAL STOCK

General

The following description of our capital stock and certain provisions of our amended and restated certificate of incorporation and amended and restated bylaws are summaries and are qualified by reference to the amended and restated certificate of incorporation and the amended and restated bylaws, which will become effective immediately prior to and upon the closing of this offering, respectively. Copies of these documents have been filed with the SEC as exhibits to our registration statement, of which this prospectus forms a part. The descriptions of the common stock and preferred stock reflect changes to our capital structure that will be in effect on the closing of this offering.

Upon filing of our amended and restated certificate of incorporation and the closing of this offering, 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 shares of preferred stock will be undesignated.

As of September 30, 2020, after giving effect to the (i) issuance of 5,600,000 shares of our Series A preferred stock in October 2020 and (ii) automatic conversion of all outstanding shares of our Series A preferred stock into 5,600,000 shares of our common stock in connection with the closing of this offering, there were 8,383,000 shares of common stock outstanding and held of record by 17 stockholders.

Common Stock

Voting Rights

The common stock is entitled to one vote per share on any matter that is submitted to a vote of our stockholders. Our amended and restated certificate of incorporation does not provide for cumulative voting for the election of directors. Our amended and restated certificate of incorporation establishes a classified board of directors that is divided into three classes with staggered three-year terms. Only the directors in one class will be subject to election by a plurality of the votes cast at each annual meeting of our stockholders, with the directors in the other classes continuing for the remainder of their respective three-year terms.

Economic Rights

Except as otherwise expressly provided in our amended and restated certificate of incorporation or required by applicable law, all shares of common stock will have the same rights and privileges and rank equally, share ratably, and be identical in all respects for all matters, including those described below.

Dividends. Subject to preferences that may apply to any shares of preferred stock outstanding at the time, the holders of our common stock are entitled to receive dividends out of funds legally available if our board of directors, in its discretion, determines to issue dividends and then only at the times and in the amounts that our board of directors may determine. See the section entitled “Dividend Policy” for further information.

Liquidation Rights. On our liquidation, dissolution, or winding-up, the holders of common stock will be entitled to share equally, identically, and ratably in all assets remaining after the payment of any liabilities, liquidation preferences and accrued or declared but unpaid dividends, if any, with respect to any outstanding preferred stock, unless a different treatment is approved by the affirmative vote of the holders of a majority of the outstanding shares of such affected class, voting separately as a class.

No Preemptive or Similar Rights

The holders of our shares of common stock are not entitled to preemptive rights, and are not subject to conversion, redemption or sinking fund provisions.

Fully Paid and Non-Assessable

In connection with this offering, our legal counsel will opine that the shares of our common stock to be issued under this offering will be fully paid and non-assessable.

Preferred Stock

As of September 30, 2020, there were 5,600,000 shares of our Series A preferred stock outstanding, held of record by 17 holders, after giving effect to the issuance of an aggregate of 5,600,000 shares of our Series A preferred stock in October 2020. Immediately prior to the closing of this offering, each outstanding share of our Series A preferred stock will convert into one share of our common stock. In addition, immediately prior to the closing of this offering, our certificate of incorporation will be amended and restated to delete all references to such shares of Series A 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

Our Rights Agreement provides that certain holders of our capital stock, including certain holders of at least 5% of our capital stock and entities affiliated with certain of our directors, shall have certain registration rights, as set forth below. The registration of shares of our common stock by the exercise of registration rights described below would enable the holders to sell these shares without restriction under the Securities Act when the applicable registration statement is declared effective. We are obligated to pay the registration expenses, other than underwriting discounts and commissions, of the shares registered by the demand, piggyback and Form S-3 registrations described below.

Generally, in an underwritten offering, the managing underwriter, if any, has the right, subject to specified conditions, to limit the number of shares such holders may include. The demand, piggyback and Form S-3 registration rights described below will expire three years after the effective date of the registration statement, of which this prospectus is a part, or with respect to any particular stockholder, such time after the effective date of the registration statement that such stockholder can sell all of its shares under Rule 144 of the Securities Act without limitation in a single transaction without registration.

Demand Registration Rights

The holders of an aggregate of 8,383,000 shares of our common stock are entitled to certain demand registration rights. At any time beginning 180 days after the closing of this offering, the holders of at least 40% of these shares may request that we register all or a portion of their shares. We are not required to effect more than two registration statements which are declared or ordered effective. With certain exceptions, we are not required to effect the filing of a registration statement during the period starting with the date of the filing of, and ending on a date 180 days following the effective date of the registration statement for this offering.

Piggyback Registration Rights

After this offering, in the event that we propose to register any of our securities under the Securities Act, either for our own account or for the account of other security holders, the holders of these shares will be entitled to certain piggyback registration rights allowing the holder to include their shares in such registration, subject to certain marketing and other limitations. As a result, whenever we propose to file a registration statement under the Securities Act, other than with respect to a demand registration or a registration statement on Forms S-4 or S-8, the holders of these shares are entitled to notice of the registration and have the right to include their shares in the registration, subject to limitations that the underwriters may impose on the number of shares included in the offering.

Form S-3 Registration Rights

The holders of an aggregate of 8,383,000 shares of common stock will be entitled to certain Form S-3 registration rights. Any holder of these shares can make a request that we register their shares on Form S-3 if we are qualified to file a registration statement on Form S-3 and if the reasonably anticipated aggregate gross proceeds of the shares offered would equal or exceed \$4.0 million. We will not be required to effect more than two registrations on Form S-3 within any 12-month period.

Anti-Takeover Provisions

The provisions of Delaware law, our amended and restated certificate of incorporation and our amended and restated bylaws, which are summarized below, may have the effect of delaying, deferring or discouraging another person from acquiring control of our company. They are also designed, in part, to encourage persons seeking to acquire control of us to negotiate first with our board of directors. We believe that the benefits of increased protection of our potential ability to negotiate with an unfriendly or unsolicited acquirer outweigh the disadvantages of discouraging a proposal to acquire us because negotiation of these proposals could result in an improvement of their terms.

Anti-Takeover Provisions of Delaware Law and Our Amended and Restated Certificate of Incorporation and Amended and Restated Bylaws

Section 203 of the Delaware General Corporation Law

We are subject to Section 203 of the DGCL, which prohibits a Delaware corporation from engaging in any business combination with any interested stockholder for a period of three years after the date that such stockholder became an interested stockholder, with the following exceptions:

- before such date, the board of directors of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;
- upon completion of the transaction that 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 began, 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
- on or after such date, the business combination is approved by the board of directors and authorized at an annual or special meeting of the stockholders, and not by written consent, by the affirmative vote of at least 66 2/3% of the outstanding voting stock that is not owned by the interested stockholder.
- Section 203 defines a “business combination” to include the following:
- any merger or consolidation involving the corporation and the interested stockholder;

- any sale, transfer, pledge or other disposition of 10% or more of the assets of the corporation involving the interested stockholder;
- subject to certain exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;
- any transaction involving the corporation that has the effect of increasing the proportionate share of the stock or 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 by or through the corporation.

In general, Section 203 defines an “interested stockholder” as an entity or person who, together with the person’s affiliates and associates, beneficially owns, or within three years prior to the time of determination of interested stockholder status did own, 15% or more of the outstanding voting stock of the corporation.

The statute could prohibit or delay mergers or other takeover or change in control attempts and, accordingly, may discourage attempts to acquire us even though such a transaction may offer our stockholders the opportunity to sell their stock at a price above the prevailing market price.

Amended and Restated Certificate of Incorporation and Amended and Restated Bylaws

Among other things, our amended and restated certificate of incorporation and amended and restated bylaws will:

- permit our board of directors to issue up to 10,000,000 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 control;
- provide that the authorized number of directors may be changed only by resolution of our board of directors;
- provide that our board of directors will be classified into three classes of directors;
- provide that, subject to the rights of any series of preferred stock to elect directors, directors may only be removed for cause, which removal may be effected, subject to any limitation imposed by law, by the holders of at least 66 2/3% of the voting power of all of our then-outstanding shares of the capital stock entitled to vote generally at an election 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;
- 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 or electronic transmission;
- 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 advance notice in writing, and also specify requirements as to the form and content of a stockholder’s notice;
- provide that special meetings of our stockholders may be called only by the chairman of our board of directors, our chief executive officer or president or by our board of directors pursuant to a resolution adopted by a majority of the total number of authorized directors, and not by our stockholders; and
- 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.

The amendment of any of these provisions would require approval by the holders of at least 66 2/3% of the voting power of all of our then-outstanding common stock entitled to vote generally in the election of directors, voting together as a single class.

The combination of these provisions will make it more difficult for our existing stockholders to replace our board of directors as well as for another party to obtain control of us by replacing our board of directors. Because our board of directors has the power to retain and discharge our officers, these provisions could also make it more difficult for existing stockholders or another party to effect a change in management. In addition, the authorization of undesignated preferred stock makes it possible for our board of directors to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to change our control.

These provisions are intended to enhance the likelihood of continued stability in the composition of our board of directors and its policies and to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed to reduce our vulnerability to hostile takeovers and to discourage certain tactics that may be used in proxy fights. However, such provisions could have the effect of discouraging others from making tender offers for our shares and may have the effect of delaying changes in our control or management. As a consequence, these provisions may also inhibit fluctuations in the market price of our stock that could result from actual or rumored takeover attempts. We believe that the benefits of these provisions, including increased protection of our potential ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure our company, outweigh the disadvantages of discouraging takeover proposals, because negotiation of takeover proposals could result in an improvement of their terms.

Choice of Forum

Our amended and restated certificate of incorporation to be effective immediately prior to the closing of this offering will provide that the Court of Chancery of the State of Delaware will be the sole and exclusive forum for the following types of actions or proceedings under Delaware statutory or common law: (i) any derivative action or proceeding brought on our behalf; (ii) any action or proceeding asserting a claim of breach of a fiduciary duty owed by any of our current or former directors, officers or other employees to us or our stockholders; (iii) any action or proceeding asserting a claim against us or any of our current or former directors, officers or other employees, arising out of or pursuant to any provision of the Delaware General Corporation Law, our certificate of incorporation or our bylaws; (iv) any action or proceeding to interpret, apply, enforce or determine the validity of our certificate of incorporation or our bylaws; (v) any action or proceeding as to which the Delaware General Corporation Law confers jurisdiction to the Court of Chancery of the State of Delaware; and (vi) any action asserting a claim against us or any of our directors, officers or other employees governed by the internal affairs doctrine.

This provision would not apply to suits brought to enforce a duty or liability created by the Exchange Act or any other claim for which the U.S. federal courts have exclusive jurisdiction.

In addition, our amended and restated certificate of incorporation to be effective immediately prior to the closing of this offering will provide that, unless we consent in writing to the selection of an alternative forum, to the fullest extent permitted by law, the federal district courts of the United States of America shall be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act.

While the Delaware courts have determined that such choice of forum provisions are facially valid, a stockholder may nevertheless seek to bring a claim in a venue other than those designated in the exclusive forum provisions, and there can be no assurance that such provisions will be enforced by a court in those other jurisdictions. We note that investors cannot waive compliance with the federal securities laws and the rules and regulations thereunder.

Limitations on Liability and Indemnification

See “Executive Compensation—Limitations on Liability and Indemnification.”

Exchange Listing

We intend to apply to have our common stock approved for listing on the Nasdaq Global Market under the symbol “LBPH.”

Transfer Agent and Registrar

On the closing of this offering, the transfer agent and registrar for our common stock will be .

SHARES ELIGIBLE FOR FUTURE SALE

Before the closing of this offering, there has been no public market for our common stock. Future sales of substantial amounts of our common stock, including shares issued on the exercise of outstanding options, in the public market after this offering, or the possibility of these sales or issuances occurring, could adversely affect the prevailing market price for our common stock or impair our ability to raise equity capital.

Based on our shares outstanding as of September 30, 2020, upon the closing of this offering, a total of _____ shares of common stock will be outstanding, assuming the (i) issuance of 5,600,000 shares of our Series A preferred stock in October 2020 and (ii) automatic conversion of all outstanding shares of our Series A preferred stock into 5,600,000 shares of our common stock in connection with the closing of this offering. Of these shares, all of the common stock sold in this offering by us, plus any shares sold by us on exercise of the underwriters' option to purchase additional common stock, will be freely tradable in the public market without restriction or further registration under the Securities Act, unless these shares are held by "affiliates," as that term is defined in Rule 144 under the Securities Act.

The remaining shares of common stock will be, and shares of common stock subject to stock options will be on issuance, "restricted securities," as that term is defined in Rule 144 under the Securities Act. These restricted securities are eligible for public sale only if they are registered under the Securities Act or if they qualify for an exemption from registration under Rules 144 or 701 under the Securities Act, which are summarized below. Restricted securities may also be sold outside of the United States to non-U.S. persons in accordance with Rule 904 of Regulation S.

Subject to the lock-up agreements described below and the provisions of Rule 144 or Regulation S under the Securities Act, as well as our insider trading policy, these restricted securities will be available for sale in the public market after the date of this prospectus.

Rule 144

In general, under Rule 144 as currently in effect, once we have been subject to public company reporting requirements of Section 13 or Section 15(d) of the Exchange Act for at least 90 days, an eligible stockholder is entitled to sell such shares without complying with the manner of sale, volume limitation, or notice provisions of Rule 144, subject to compliance with the public information requirements of Rule 144. To be an eligible stockholder under Rule 144, such stockholder must not be deemed to have been one of our affiliates for purposes of the Securities Act at any time during the 90 days preceding a sale and must have beneficially owned the shares proposed to be sold for at least six months, including the holding period of any prior owner other than our affiliates. If such a person has beneficially owned the shares proposed to be sold for at least one year, including the holding period of any prior owner other than our affiliates, then such person is entitled to sell such shares without complying with any of the requirements of Rule 144, subject to the expiration of the lock-up agreements described below.

In general, under Rule 144, as currently in effect, our affiliates or persons selling shares on behalf of our affiliates are entitled to sell shares on expiration of the lock-up agreements described below. Beginning 90 days after the date of this prospectus, within any three-month period, such stockholders may sell a number of shares that does not exceed the greater of:

- 1% of the number of shares of common stock then outstanding, which will equal approximately _____ shares immediately after this offering, assuming no exercise of the underwriters' option to purchase additional shares of common stock from us; or
- the average weekly trading volume of our common stock on the Nasdaq Global Market during the four calendar weeks preceding the filing of a notice on Form 144 with respect to such sale.

Sales under Rule 144 by our affiliates or persons selling shares on behalf of our affiliates are also subject to certain manner of sale provisions and notice requirements and to the availability of current public information about us.

Rule 701

Rule 701 generally allows a stockholder who was issued shares under a written compensatory plan or contract and who is not deemed to have been an affiliate of our company during the immediately preceding 90 days, to sell these shares in reliance on Rule 144, but without being required to comply with the public information, holding period, volume limitation, or notice provisions of Rule 144. Rule 701 also permits affiliates of our company to sell their Rule 701 shares under Rule 144 without complying with the holding period requirements of Rule 144. All holders of Rule 701 shares, however, are required by that rule to wait until 90 days after the date of this prospectus before selling those shares under Rule 701, subject to the expiration of the lock-up agreements described below.

Form S-8 Registration Statements

We intend to file one or more registration statements on Form S-8 under the Securities Act with the SEC to register the offer and sale of shares of our common stock that are issuable under our 2020 Plan, 2021 Plan and ESPP. These registration statements will become effective immediately on filing. Shares covered by these registration statements will then be eligible for sale in the public markets, subject to vesting restrictions, any applicable lock-up agreements described below, and Rule 144 limitations applicable to affiliates.

Lock-up Arrangements

We, and all of our directors, executive officers and the holders of all of our common stock and securities exercisable for or convertible into our common stock outstanding immediately on the closing of this offering, have agreed with the underwriters that, until 180 days after the date of the underwriting agreement related to this offering, we and they will not, without the prior written consent of Citigroup Global Markets Inc., Evercore Group L.L.C., Guggenheim Securities, LLC and Cantor Fitzgerald & Co., directly or indirectly, 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 any of our shares of common stock, or any securities convertible into or exercisable or exchangeable for shares of our common stock, or enter into any swap or any other agreement or any transaction that transfers, in whole or in part, directly or indirectly, the economic consequence of ownership of the securities, whether any such swap or transaction is to be settled by delivery of our common stock or other securities, in cash or otherwise. These agreements are described in “Underwriting.” Citigroup Global Markets Inc., Evercore Group L.L.C., Guggenheim Securities, LLC and Cantor Fitzgerald & Co. may, in their sole discretion, release any of the securities subject to these lock-up agreements at any time.

Registration Rights

Upon the closing of this offering, pursuant to our Rights Agreement, the holders of 8,383,000 shares of our common stock, or their transferees, will be entitled to certain rights with respect to the registration of the offer and sale of their shares under the Securities Act, subject to the terms of the lock-up agreements described under “—Lock-Up Arrangements” above. Registration of these shares under the Securities Act would result in the shares becoming freely tradable without restriction under the Securities Act immediately on 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” for additional information.

MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES TO NON-U.S. HOLDERS

The following is a summary of the material U.S. federal income tax consequences to non-U.S. holders (as defined below) of the purchase, ownership and disposition of our common stock issued pursuant to this offering. This discussion is not a complete analysis of all potential U.S. federal income tax consequences relating thereto, does not address the potential application of the special tax accounting rules under Section 451(b) of the Code, alternative minimum tax or the Medicare contribution tax on net investment income, and does not address any U.S. federal non-income tax consequences, including estate or gift tax consequences or any tax consequences arising under any state, local or non-U.S. tax laws. This discussion is based on the Internal Revenue Code of 1986, as amended (Code), Treasury Regulations promulgated thereunder, judicial decisions, and published rulings and administrative pronouncements of the Internal Revenue Service (IRS) all as in effect on the date of this prospectus. These authorities are subject to differing interpretations and may change, possibly retroactively, resulting in U.S. federal income tax consequences different from those discussed below. We have not requested a ruling from the IRS with respect to the statements made and the conclusions reached in the following summary, and there can be no assurance that the IRS or a court will agree with such statements and conclusions.

This discussion is limited to non-U.S. holders who purchase our common stock pursuant to this offering and who hold our common stock as a “capital asset” within the meaning of Section 1221 of the Code (generally, property held for investment). This discussion does not address all of the U.S. federal income tax consequences that may be relevant to an individual holder in light of such holder’s particular circumstances. This discussion also does not consider any specific facts or circumstances that may be relevant to holders subject to special rules under the U.S. federal income tax laws, including:

- U.S. expatriates and certain former citizens or long-term residents of the United States;
- partnerships or entities or arrangements treated as pass-through or disregarded entities for U.S. federal income tax purposes (and investors therein);
- “controlled foreign corporations”;
- “passive foreign investment companies”;
- corporations that accumulate earnings to avoid U.S. federal income tax;
- banks, financial institutions, investment funds, insurance companies, brokers, dealers or traders in securities;
- tax-exempt organizations and governmental organizations;
- tax-qualified retirement plans;
- “qualified foreign pension funds” as defined in Section 897(l)(2) of the Code and entities all of the interests of which are held by qualified foreign pension funds;
- persons that own or have owned, actually or constructively, more than 5% of our common stock;
- persons who have elected to mark securities to market; and
- persons holding our common stock as part of a hedging or conversion transaction or straddle, or a constructive sale, or other risk reduction strategy or integrated investment.

If a partnership or an entity or arrangement that is classified as a pass-through for U.S. federal income tax purposes holds our common stock, the U.S. federal income tax treatment of a partner in the partnership will generally depend on the status of the partner, the activities of the partnership and certain determinations made at the partner level. Partnerships holding our common stock and the partners in such partnerships are urged to consult their tax advisors about the particular U.S. federal income tax consequences to them of purchasing, owning and disposing of our common stock.

THIS DISCUSSION IS FOR INFORMATIONAL PURPOSES ONLY AND IS NOT TAX ADVICE. PROSPECTIVE INVESTORS SHOULD CONSULT THEIR TAX ADVISORS REGARDING THE PARTICULAR U.S. FEDERAL INCOME TAX CONSEQUENCES TO THEM OF PURCHASING, OWNING AND DISPOSING OF OUR COMMON STOCK, AS WELL AS ANY TAX CONSEQUENCES ARISING UNDER ANY STATE, LOCAL OR NON-U.S. TAX LAWS AND ANY U.S. FEDERAL NON-INCOME TAX LAWS.

Definition of Non-U.S. Holder

For purposes of this discussion, a non-U.S. holder is any beneficial owner of our common stock that is not a “U.S. person” or a partnership (including any entity or arrangement treated as a pass-through) for U.S. federal income tax purposes. A U.S. person is any person that, for U.S. federal income tax purposes, is or is treated as any of the following:

- an individual who is a citizen or resident of the United States;
- a corporation created or organized under the laws of the United States, any state thereof or the District of Columbia;
- an estate, the income of which is subject to U.S. federal income tax regardless of its source; or
- a trust if (1) its administration is subject to the primary supervision of a U.S. court and one or more U.S. persons have the authority to control all substantial decisions of the trust or (2) it has a valid election in effect under applicable U.S. Treasury Regulations to be treated as a U.S. person.

Distributions on Our Common Stock

As described under “Dividend Policy,” we have never declared or paid any cash dividends on our capital stock, and we do not anticipate declaring or paying, in the foreseeable future, any cash dividends on our capital stock. However, if we distribute cash or other property on our common stock, such distributions will constitute dividends for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. Amounts not treated as dividends for U.S. federal income tax purposes will constitute a return of capital and will first be applied against and reduce a holder’s tax basis in our common stock, but not below zero. Any amount distributed in excess of basis will be treated as gain realized on the sale or other disposition of our common stock and will be treated as described under “—Gain On Disposition of Our Common Stock” below.

Subject to the discussions below regarding effectively connected income, backup withholding and Sections 1471 through 1474 of the Code (commonly referred to as FATCA), dividends paid to a non-U.S. holder of our common stock generally will be subject to U.S. federal withholding tax at a rate of 30% of the gross amount of the dividends or such lower rate specified by an applicable income tax treaty. To receive the benefit of a reduced treaty rate, a non-U.S. holder must furnish us or our withholding agent with a valid IRS Form W-8BEN or IRS Form W-8BEN-E (or applicable successor form) certifying such holder’s qualification for the reduced rate. This certification must be provided to us or our withholding agent before the payment of dividends and must be updated periodically. If the non-U.S. holder holds our common stock through a financial institution or other agent acting on the non-U.S. holder’s behalf, the non-U.S. holder will be required to provide appropriate documentation to the agent, which then will be required to provide certification to us or our withholding agent, either directly or through other intermediaries.

If a non-U.S. holder holds our common stock in connection with the conduct of a trade or business in the United States, and dividends paid on our common stock are effectively connected with such holder’s U.S. trade or business (and are attributable to such holder’s permanent establishment or fixed base in the United States if required by an applicable tax treaty), the non-U.S. holder will be exempt from U.S. federal withholding tax. To claim the exemption, the non-U.S. holder must generally furnish a valid IRS Form W-8ECI (or applicable successor form) to the applicable withholding agent.

However, any such effectively connected dividends paid on our common stock generally will be subject to U.S. federal income tax on a net income basis at the regular U.S. federal income tax rates in the same manner as if such holder were a resident of the United States. A non-U.S. holder that is a foreign corporation also may be subject to an additional branch profits tax equal to 30% (or such lower rate specified by an applicable income tax treaty) of its effectively connected earnings and profits for the taxable year, as adjusted for certain items.

Non-U.S. holders that do not provide the required certification on a timely basis, but that qualify for a reduced treaty rate, may obtain a refund of any excess amounts withheld by timely filing an appropriate claim for refund with the IRS. Non-U.S. holders should consult their tax advisors regarding any applicable income tax treaties that may provide for different rules.

Gain on Disposition of Our Common Stock

Subject to the discussions below regarding backup withholding and FATCA, a non-U.S. holder generally will not be subject to U.S. federal income tax on any gain realized on the sale or other disposition of our common stock, unless:

- the gain is effectively connected with the non-U.S. holder's conduct of a trade or business in the United States and, if required by an applicable income tax treaty, is attributable to a permanent establishment or fixed base maintained by the non-U.S. holder in the United States;
- the non-U.S. holder is a nonresident alien individual who is present in the United States for 183 days or more during the taxable year of the disposition, and certain other requirements are met; or
- our common stock constitutes a "United States real property interest" by reason of our status as a United States real property holding corporation (USRPHC) for U.S. federal income tax purposes at any time within the shorter of the five-year period preceding the disposition or the non-U.S. holder's holding period for our common stock, and our common stock is not regularly traded on an established securities market during the calendar year in which the sale or other disposition occurs.

Determining whether we are a USRPHC depends on the fair market value of our U.S. real property interests relative to the fair market value of our other trade or business assets and our non-U.S. real property interests. We believe that we are not currently and we do not anticipate becoming a USRPHC for U.S. federal income tax purposes, although there can be no assurance we will not in the future become a USRPHC. Even if we became a USRPHC, a non-U.S. holder would not be subject to U.S. federal income tax on a sale, exchange, or other taxable disposition of our common stock by reason of our status as an USRPHC so long as our common stock is regularly traded on an established securities market (within the meaning of the applicable regulations) and such non-U.S. holder does not own and is not deemed to own (directly, indirectly, or constructively) more than 5% of our outstanding common stock at any time during the shorter of the five year period ending on the date of disposition and such holder's holding period. However, no assurance can be provided that our common stock will be regularly traded on an established securities market for purposes of the rules described above. If we are a USRPHC and our common stock is not regularly traded on an established securities market, such non-U.S. holder's proceeds received on the disposition of shares will generally be subject to withholding at a rate of 15% and such non-U.S. holder will generally be taxed on any gain in the same manner as gain that is effectively connected with the conduct of a U.S. trade or business, except that the branch profits tax generally will not apply. Prospective investors are encouraged to consult their own tax advisors regarding the possible consequences to them if we are, or were to become, a USRPHC.

Gain described in the first bullet point above generally will be subject to U.S. federal income tax on a net income basis at the regular U.S. federal income tax rates in the same manner as if such holder were a resident of the United States. A non-U.S. holder that is a foreign corporation also may be subject to an additional branch profits tax equal to 30% (or such lower rate specified by an applicable income tax treaty) of its effectively connected earnings and profits for the taxable year, as adjusted for certain items. A non-U.S. holder described in

the second bullet point above will be subject to U.S. federal income tax at a flat 30% rate (or such lower rate specified by an applicable income tax treaty) on gain realized upon the sale of other taxable disposition of our common stock, but may be offset by certain U.S.-source capital losses (even though the individual is not considered a resident of the United States), provided that the non-U.S. holder has timely filed U.S. federal income tax returns with respect to such losses.

Non-U.S. holders should consult their tax advisors regarding any applicable income tax treaties that may provide for different rules.

Information Reporting and Backup Withholding

Annual reports are required to be filed with the IRS and provided to each non-U.S. holder indicating the amount of distributions on our common stock paid to such holder and the amount of any tax withheld with respect to those distributions. These information reporting requirements apply even if no withholding was required because the distributions were effectively connected with the holder's conduct of a U.S. trade or business, or withholding was reduced or eliminated by an applicable income tax treaty. This information also may be made available under a specific treaty or agreement with the tax authorities in the country in which the non-U.S. holder resides or is established. Dividends paid by us (or our paying agents) to a non-U.S. holder may also be subject to U.S. federal backup withholding, currently imposed at a rate of 24%. Backup withholding generally will not apply to payments to a non-U.S. holder of dividends on or the gross proceeds of a disposition of our common stock provided the non-U.S. holder furnishes the required certification for its non-U.S. status, such as by providing a valid IRS Form W-8BEN, IRS Form W-8BEN-E or IRS Form W-8ECI, or otherwise establishes an exemption, and if the payor does not have actual knowledge, or reason to know, that the holder is a U.S. person who is not an exempt recipient.

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 unless the non-U.S. holder certifies to the withholding agent under penalties of perjury as to, among other things, its status as a non-U.S. holder (which certification may generally be made on an applicable IRS Form W-8) 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. If any amount is withheld under the backup withholding rules, the non-U.S. holder should consult with a U.S. tax advisor regarding the possibility of and procedure for obtaining a refund or a credit against the non-U.S. holder's U.S. federal income tax liability, if any.

Withholding on Payments to Certain Foreign Accounts

FATCA imposes a U.S. federal withholding tax of 30% on certain payments, including dividends on our common stock made to (1) a "foreign financial institution" (as specially defined under these 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 certain information regarding certain U.S. account holders of such institution (which includes certain equity and debt holders of such institution, as well as certain account holders that are foreign entities with U.S. owners) or an exemption applies or (2) a non-financial foreign entity unless such entity provides the withholding agent a certification identifying certain direct and indirect U.S. owners of the entity or an exemption applies. An intergovernmental agreement between the United States and an applicable foreign country may modify these requirements. Under certain circumstances, a non-U.S. holder might be eligible for refunds or credits of such taxes.

Although FATCA would have also imposed a federal withholding tax of 30% to payments of gross proceeds from the sale or other disposition of our common stock, the U.S. Treasury Department released proposed regulations which, if finalized in their present form, would eliminate the federal withholding tax of 30% applicable to the gross proceeds of a sale or other disposition of our common stock. In its preamble to such proposed Treasury Regulations, the U.S. Treasury stated that taxpayers may generally rely on the proposed regulations until final regulations are issued.

Prospective investors are encouraged to consult with their own tax advisors regarding the possible implications of FATCA on their investment in our common stock.

EACH PROSPECTIVE INVESTOR SHOULD CONSULT ITS OWN TAX ADVISOR REGARDING THE TAX CONSEQUENCES OF PURCHASING, HOLDING AND DISPOSING OF OUR COMMON STOCK, INCLUDING THE CONSEQUENCES OF ANY PROPOSED OR RECENT CHANGES IN APPLICABLE LAW, AS WELL AS TAX CONSEQUENCES ARISING UNDER ANY STATE, LOCAL, NON-U.S. OR U.S. FEDERAL NON-INCOME TAX LAWS OR UNDER ANY APPLICABLE TAX TREATY.

UNDERWRITING

Citigroup Global Markets Inc., Evercore Group L.L.C., Guggenheim Securities, LLC, and Cantor Fitzgerald & Co. are acting as joint book-running managers of the offering and as the representatives of the underwriters. Subject to the terms and conditions stated in the underwriting agreement dated the date of this prospectus, each underwriter named below has severally agreed to purchase, and we have agreed to sell to that underwriter, the number of shares set forth opposite the underwriter's name.

Underwriter	Number of Shares
Citigroup Global Markets Inc.	
Evercore Group L.L.C.	
Guggenheim Securities, LLC	
Cantor Fitzgerald & Co.	
Total	

The underwriting agreement provides that the obligations of the underwriters to purchase the shares included in this offering are subject to approval of legal matters by counsel and to other conditions. The underwriters are obligated to purchase all the shares (other than those covered by the underwriters' option to purchase additional shares described below) if they purchase any of the shares.

Shares sold by the underwriters to the public will initially be offered at the initial public offering price set forth on the cover of this prospectus. Any shares sold by the underwriters to securities dealers may be sold at a discount from the initial public offering price not to exceed \$ per share. If all the shares are not sold at the initial offering price, the underwriters may change the offering price and the other selling terms. The representatives have advised us that the underwriters do not intend to make sales to discretionary accounts.

If the underwriters sell more shares than the total number set forth in the table above, we have granted to the underwriters an option, exercisable for 30 days from the date of this prospectus, to purchase up to additional shares at the public offering price less the underwriting discounts and commissions. To the extent the option is exercised, each underwriter must purchase a number of additional shares approximately proportionate to that underwriter's initial purchase commitment. Any shares issued or sold under the option will be issued and sold on the same terms and conditions as the other shares that are the subject of this offering.

We, our officers and directors, and our other security holders, have agreed that, subject to certain specified exceptions, for a period of 180 days from the date of this prospectus, we and they will not, without the prior written consent of each of the representatives, dispose of or hedge any shares or any securities convertible into or exchangeable for our common stock. The representatives in their sole discretion may release any of the securities subject to these lock-up agreements at any time, which, in the case of officers and directors, shall be with notice.

Prior to this offering, there has been no public market for our shares. Consequently, the initial public offering price for the shares was determined by negotiations between us and the representatives. Among the factors considered in determining the initial public offering price were our results of operations, our current financial condition, our future prospects, our markets, the economic conditions in and future prospects for the industry in which we compete, our management, and currently prevailing general conditions in the equity securities markets, including current market valuations of publicly traded companies considered comparable to our company. We cannot assure you, however, that the price at which the shares will sell in the public market after this offering will not be lower than the initial public offering price or that an active trading market in our shares will develop and continue after this offering.

We intend to apply to have our common stock approved for listing on the Nasdaq Global Market under the symbol "LBPH."

[Table of Contents](#)

The following table shows the underwriting discounts and commissions that we are to pay to the underwriters in connection with this offering. These amounts are shown assuming both no exercise and full exercise of the underwriters' option to purchase additional shares.

	Paid by Longboard Pharmaceuticals, Inc.	
	No Exercise	Full Exercise
Per share	\$	\$
Total	\$	\$

We estimate that our portion of the total expenses of this offering, excluding underwriting discounts and commissions payable by us, will be approximately \$. We have also agreed to reimburse the underwriters for certain of their expenses in an amount up to \$.

In connection with the offering, the underwriters may purchase and sell shares in the open market. Purchases and sales in the open market may include short sales, purchases to cover short positions, which may include purchases pursuant to the underwriters' option to purchase additional shares, and stabilizing purchases.

- Short sales involve secondary market sales by the underwriters of a greater number of shares than they are required to purchase in the offering.
 - "Covered" short sales are sales of shares in an amount up to the number of shares represented by the underwriters' option to purchase additional shares.
 - "Naked" short sales are sales of shares in an amount in excess of the number of shares represented by the underwriters' option to purchase additional shares.
- Covering transactions involve purchases of shares either pursuant to the underwriters' option to purchase additional shares or in the open market in order to cover short positions.
 - To close a naked short position, the underwriters must purchase 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 in the open market after pricing that could adversely affect investors who purchase in the offering.
 - To close a covered short position, the underwriters must purchase shares in the open market or must exercise the option to purchase additional shares. In determining the source of shares to close 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 underwriters' option to purchase additional shares.
- Stabilizing transactions involve bids to purchase shares so long as the stabilizing bids do not exceed a specified maximum.

Purchases to cover short positions and stabilizing purchases, as well as other purchases by the underwriters for their own accounts, may have the effect of preventing or retarding a decline in the market price of the shares. They may also cause the price of the shares to be higher than the price that would otherwise exist in the open market in the absence of these transactions. The underwriters may conduct these transactions on the Nasdaq Global Market, in the over-the-counter market or otherwise. If the underwriters commence any of these transactions, they may discontinue them at any time.

Other Relationships

The underwriters are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment management, principal investment, hedging, financing and brokerage activities. The underwriters and their respective affiliates have in

the past performed, or may in the future perform, commercial banking, investment banking and advisory services for us from time to time for which they have received, or may in the future receive, customary fees and reimbursement of expenses and may, from time to time, engage in transactions with and perform services for us in the ordinary course of their business for which they may receive customary fees and reimbursement of expenses. In the ordinary course of their various business activities, the underwriters and 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 (which may include bank loans and/or credit default swaps) for their own account and for the accounts of their customers and may at any time hold long and short positions in such securities and instruments. Such investments and securities activities may involve securities and/or instruments of ours or our affiliates. The underwriters and their affiliates may also make investment recommendations and/or publish or express independent research views in respect of such securities or financial instruments and may hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

We have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act, or to contribute to payments the underwriters may be required to make because of any of those liabilities.

Notice to Prospective Investors in the European Economic Area

In relation to each member state of the European Economic Area that has implemented the Prospectus Directive (each, a relevant member state), with effect from and including the date on which the Prospectus Directive is implemented in that relevant member state (the relevant implementation date), an offer of shares described in this prospectus may not be made to the public in that relevant member state other than:

- 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 relevant Dealer or Dealers 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 shares shall require us or any underwriter to publish a prospectus pursuant to Article 3 of the Prospectus Directive.

For purposes of this provision, the expression an “offer of securities to the public” 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 shares to be offered so as to enable an investor to decide to purchase or subscribe for the shares, as the expression may be varied in that member state by any measure implementing the Prospectus Directive in that 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. The expression 2010 PD Amending Directive means Directive 2010/73/EU.

The sellers of the shares have not authorized and do not authorize the making of any offer of shares through any financial intermediary on their behalf, other than offers made by the underwriters with a view to the final placement of the shares as contemplated in this prospectus. Accordingly, no purchaser of the shares, other than the underwriters, is authorized to make any further offer of the shares on behalf of the sellers or the underwriters.

Notice to Prospective Investors in the 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 (the “Order”) or (ii) high net worth entities, and other persons to whom it may lawfully be communicated, falling within Article 49(2)(a) to (d) of the Order (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.

Notice to Prospective Investors in France

Neither this prospectus nor any other offering material relating to the shares described in this prospectus has been submitted to the clearance procedures of the *Autorité des Marchés Financiers* or of the competent authority of another member state of the European Economic Area and notified to the *Autorité des Marchés Financiers*. The shares have not been offered or sold and will not be offered or sold, directly or indirectly, to the public in France. Neither this prospectus nor any other offering material relating to the shares has been or will be:

- released, issued, distributed or caused to be released, issued or distributed to the public in France; or
- used in connection with any offer for subscription or sale of the shares to the public in France.

Such offers, sales and distributions will be made in France only:

- to qualified investors (*investisseurs qualifiés*) and/or to a restricted circle of investors (*cercle restreint d'investisseurs*), in each case investing for their own account, all as defined in, and in accordance with articles L.411-2, D.411-1, D.411-2, D.734-1, D.744-1, D.754-1 and D.764-1 of the French *Code monétaire et financier*;
- to investment services providers authorized to engage in portfolio management on behalf of third parties; or
- in a transaction that, in accordance with article L.411-2-II-1°-or-2°-or 3° of the French *Code monétaire et financier* and article 211-2 of the General Regulations (*Règlement Général*) of the *Autorité des Marchés Financiers*, does not constitute a public offer (*appel public à l'épargne*).

The shares may be resold directly or indirectly, only in compliance with articles L.411-1, L.411-2, L.412-1 and L.621-8 through L.621-8-3 of the French *Code monétaire et financier*.

Notice to Prospective Investors in Hong Kong

The shares may not be offered or sold in Hong Kong by means of any document other than (i) in circumstances which do not constitute an offer to the public within the meaning of the Companies Ordinance (Cap. 32, Laws of Hong Kong), or (ii) to “professional investors” within the meaning of the Securities and Futures Ordinance (Cap. 571, Laws of Hong Kong) and any rules made thereunder, or (iii) in other circumstances which do not result in the document being a “prospectus” within the meaning of the Companies Ordinance (Cap. 32, Laws of Hong Kong) and no advertisement, invitation or document relating to the shares 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 in Hong Kong (except if permitted to do so under the laws of Hong Kong) other than with respect to shares which are or are intended to be disposed of only to persons outside Hong Kong or only to “professional investors” within the meaning of the Securities and Futures Ordinance (Cap. 571, Laws of Hong Kong) and any rules made thereunder.

Notice to Prospective Investors in Singapore

This prospectus has not been 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 shares may not be circulated or distributed, nor may the shares 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, in each case subject to compliance with conditions set forth in the SFA.

Where the shares 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,

shares, debentures and units of shares and debentures 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 shares pursuant to an offer made under Section 275 of the SFA except:

- to an institutional investor (for corporations, under Section 274 of the SFA) or to a relevant person defined in Section 275(2) of the SFA, or to any person pursuant to an offer that is made on terms that such shares, debentures and units of shares and debentures of that corporation or such rights and interest in that trust are acquired at a consideration of not less than S\$200,000 (or its equivalent in a foreign currency) for each transaction, whether such amount is to be paid for in cash or by exchange of securities or other assets, and further for corporations, in accordance with the conditions specified in Section 275 of the SFA;
- where no consideration is or will be given for the transfer; or
- where the transfer is by operation of law.

Notice to Prospective Investors in Australia

No prospectus or other disclosure document (as defined in the Corporations Act 2001 (Cth) of Australia, or the Corporations Act) in relation to the common stock has been or will be lodged with the Australian Securities & Investments Commission, or ASIC. This document has not been lodged with ASIC and is only directed to certain categories of exempt persons. Accordingly, if you receive this document in Australia:

- you confirm and warrant that you are either:
 - a “sophisticated investor” under section 708(8)(a) or (b) of the Corporations Act;
 - a “sophisticated investor” under section 708(8)(c) or (d) of the Corporations Act and that you have provided an accountant’s certificate to us which complies with the requirements of section 708(8)(c)(i) or (ii) of the Corporations Act and related regulations before the offer has been made;
 - a person associated with 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, and 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 document is void and incapable of acceptance; and
- you warrant and agree that you will not offer any of the common stock for resale in Australia within 12 months of that common stock being issued unless any such resale offer is exempt from the requirement to issue a disclosure document under section 708 of the Corporations Act.

Notice to Prospective Investors in Canada

The shares may be sold in Canada only to purchasers purchasing, or deemed to be purchasing, as principal that are accredited investors, as defined in National Instrument 45-106 Prospectus Exemptions or subsection 73.3(1) of the Securities Act (Ontario), and are permitted clients, as defined in National Instrument 31-103 Registration Requirements, Exemptions and Ongoing Registrant Obligations. Any resale of the shares must be made in accordance with an exemption from, or in a transaction not subject to, the prospectus requirements of applicable securities laws.

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if this offering memorandum (including any amendment thereto) contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser should refer to any applicable provisions of the securities legislation of the purchaser's province or territory for particulars of these rights or consult with a legal advisor.

Pursuant to section 3A.3 of National Instrument 33-105 Underwriting Conflicts (NI 33-105), the underwriters are not required to comply with the disclosure requirements of NI 33-105 regarding underwriter conflicts of interest in connection with this offering.

Notice to Prospective Investors in China

This prospectus does not constitute a public offer of shares, whether by sale or subscription, in the People's Republic of China, or the PRC. The shares are not being offered or sold directly or indirectly in the PRC to or for the benefit of, legal or natural persons of the PRC.

Further, no legal or natural persons of the PRC may directly or indirectly purchase any of the shares or any beneficial interest therein without obtaining all prior PRC's governmental approvals that are required, whether statutorily or otherwise. Persons who come into possession of this document are required by the issuer and its representatives to observe these restrictions.

LEGAL MATTERS

The validity of the issuance of our common stock offered in this prospectus will be passed upon for us by Cooley LLP, San Diego, California. Certain legal matters in connection with this offering will be passed upon for the underwriters by Latham & Watkins LLP, San Diego, California.

EXPERTS

The financial statements of Longboard Pharmaceuticals, Inc. as of September 30, 2020, and for the period from January 3, 2020 (inception) through September 30, 2020, have been included herein and in the registration statement in reliance upon the report of KPMG LLP, independent registered public accounting firm, appearing elsewhere herein, and upon the authority of said 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 offered by this prospectus. This prospectus, which constitutes a part of the registration statement, does not contain all the information set forth in the registration statement, some of which is contained in exhibits to the registration statement as permitted by the rules and regulations of the SEC. For further information with respect to us and our common stock, we refer you to the registration statement, including the exhibits filed as a part of the registration statement. Statements contained in this prospectus concerning the contents of any contract or any other document are not necessarily complete. If a contract or document has been filed as an exhibit to the registration statement, please see the copy of the contract or document that has been filed. Each statement in this prospectus relating to a contract or document filed as an exhibit is qualified in all respects by the filed exhibit. The SEC also maintains an internet website that contains reports and other information about issuers, like us, that file electronically with the SEC. The address of that website is www.sec.gov.

On 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.longboardpharma.com. Information contained in, or accessible through, our website is not a part of this prospectus, and the inclusion of our website address in this prospectus is only as an inactive textual reference.

[Table of Contents](#)

LONGBOARD PHARMACEUTICALS, INC.
INDEX TO FINANCIAL STATEMENTS

	<u>Page</u>
<u>Report of Independent Registered Public Accounting Firm</u>	F-2
<u>Balance Sheet as of September 30, 2020</u>	F-3
<u>Statement of Operations and Comprehensive Loss for the Period January 3, 2020 (Inception) through September 30, 2020</u>	F-4
<u>Statement of Stockholders' Deficit for the Period January 3, 2020 (Inception) through September 30, 2020</u>	F-5
<u>Statement of Cash Flows for the Period January 3, 2020 (Inception) through September 30, 2020</u>	F-6
<u>Notes to Financial Statements</u>	F-7

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and Board of Directors
Longboard Pharmaceuticals, Inc.:

Opinion on the Financial Statements

We have audited the accompanying balance sheet of Longboard Pharmaceuticals, Inc. (the Company) as of September 30, 2020, the related statement of operations and comprehensive loss, stockholders' deficit, and cash flows for the period January 3, 2020 (inception) through September 30, 2020, and the related notes (collectively, the financial statements). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of September 30, 2020, and the results of its operations and its cash flows for the period January 3, 2020 (inception) through September 30, 2020, in conformity with U.S. generally accepted accounting principles.

Basis for Opinion

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 are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB and in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audit included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audit also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audit provides a reasonable basis for our opinion.

/s/ KPMG LLP

We have served as the Company's auditor since 2020.

San Diego, California
December 15, 2020

LONGBOARD PHARMACEUTICALS, INC.
BALANCE SHEET
(in thousands, except share data and par value)

	September 30, 2020
Assets	
Current assets:	
Cash	\$ 217
Other current assets	1
Total current assets	218
Total assets	\$ 218
Liabilities and Stockholders' Deficit	
Current liabilities:	
Accounts payable	\$ 122
Accrued research and development expenses	716
Accrued other expenses	148
Accrued compensation and related expenses	175
Total current liabilities	1,161
Commitments and contingencies (See Note 8)	
Stockholders' deficit:	
Common stock, \$0.0001 par value; 2,783,000 shares authorized, issued and outstanding at September 30, 2020	—
Additional paid-in capital	3,348
Accumulated deficit	(4,291)
Total stockholders' deficit	(943)
Total liabilities and stockholders' deficit	\$ 218

See accompanying notes

LONGBOARD PHARMACEUTICALS, INC.
STATEMENT OF OPERATIONS AND COMPREHENSIVE LOSS
(in thousands)

	For the Period January 3, 2020 (Inception) through September 30, 2020
Operating expenses:	
Research and development (includes related party amounts of \$559)	\$ 2,462
General and administrative (includes related party amounts of \$1,100)	1,829
Total operating expenses	4,291
Loss from operations	(4,291)
Net loss and comprehensive loss	\$ (4,291)
Net loss per share, basic and diluted	\$ (1.56)
Weighted-average shares outstanding, basic and diluted	2,752,192

See accompanying notes

LONGBOARD PHARMACEUTICALS, INC.
STATEMENT OF STOCKHOLDERS' DEFICIT
(in thousands, except share data)

	Common Stock		Additional	Accumulated	Total
	Shares	Amount	Paid-in	Deficit	Stockholders'
		\$	Capital		Deficit
Balance at January 3, 2020 (Inception)	—	\$ —	\$ —	\$ —	\$ —
Purchase of common stock by Arena Pharmaceuticals, Inc.	2,783,000	—	—	—	—
Arena Pharmaceuticals, Inc. capital contributions	—	—	2,200	—	2,200
Stock-based compensation	—	—	1,148	—	1,148
Net loss	—	—	—	(4,291)	(4,291)
Balance at September 30, 2020	<u>2,783,000</u>	<u>\$ —</u>	<u>\$ 3,348</u>	<u>\$ (4,291)</u>	<u>\$ (943)</u>

See accompanying notes

LONGBOARD PHARMACEUTICALS, INC.
STATEMENT OF CASH FLOWS
(in thousands)

	For the Period January 3, 2020 (Inception) through September 30, 2020
Cash flows from operating activities:	
Net loss	\$ (4,291)
Adjustments to reconcile net loss to net cash used in operating activities:	
Stock-based compensation expense	1,148
Changes in operating assets and liabilities:	
Other current assets	(1)
Accounts payable	122
Accrued research and development expenses	716
Accrued other expenses	148
Accrued compensation and related expenses	175
Net cash used in operating activities	<u>(1,983)</u>
Cash flows from financing activities:	
Capital contributions from Arena Pharmaceuticals, Inc.	2,200
Net cash provided by financing activities	<u>2,200</u>
Net increase in cash	217
Cash at the beginning of the period	<u>—</u>
Cash at the end of the period	<u>\$ 217</u>

See accompanying notes

**LONGBOARD PHARMACEUTICALS, INC.
NOTES TO FINANCIAL STATEMENTS**

1. Organization and Basis of Presentation

Description of Business

Longboard Pharmaceuticals, Inc. (the Company), formerly Arena Neuroscience, Inc., was incorporated in the state of Delaware on January 3, 2020. The Company was organized and initially wholly-owned by Arena Pharmaceuticals, Inc. (Arena), until the closing of its Series A convertible preferred stock (Series A Preferred Stock) financing in October 2020. The Company is a clinical stage biopharmaceutical company focused on developing novel, transformative medicines for rare neurological diseases. The Company's most advanced product candidate, LP352, is being developed to treat patients with developmental and epileptic encephalopathies and is currently in a Phase 1 clinical trial. The Company's preclinical product candidates include LP143 and LP659, which are focused on developing therapies for central nervous system neuroinflammatory diseases.

Forward Stock Split

On October 27, 2020, the Company filed an amendment to the Company's certificate of incorporation to effect a forward stock split of shares of the Company's common stock on a 2,783-for-1 basis (Forward Stock Split). The par value of the common stock was not adjusted as a result of the Forward Stock Split and the authorized shares were increased to 2,783,000 shares of common stock in connection with the Forward Stock Split. The accompanying financial statements and notes to the financial statements give retroactive effect to the Forward Stock Split for the period presented.

Basis of Presentation

The accompanying financials statements include the financial results from inception (January 3, 2020) through September 30, 2020. The Company's fiscal year-end is December 31. The Company concluded under the guidance in Accounting Standards Codification 805, *Business Combinations* that the Company was not required to present historical carve-out financial results for activity occurring at Arena prior to the Company's formation as the assets licensed to the Company by Arena did not constitute a business. The financial statements include allocations of certain Arena corporate expenses, including costs of information technology, human resources, accounting, legal, facilities, insurance, treasury and other corporate and infrastructure services. These allocations were made on the basis of the actual hours incurred in providing services to the Company by employees of Arena multiplied by a fully burdened average cost per employee. Management believes such allocation of corporate expenses from Arena is reasonable. However, the financial statements may not include all of the expenses that would have been incurred had the Company been a stand-alone company during the period presented and may not reflect the Company's results of operations, financial position and cash flows had the Company been a stand-alone company during the period presented. The Company also received capital contributions of \$2.2 million from Arena to fund start-up activities throughout the period ended September 30, 2020. The capital contributions from Arena have been presented in additional paid-in capital on the balance sheet and statement of stockholders' deficit. Additionally, Arena purchased for cash 2,783,000 shares of the Company's common stock for aggregate consideration of \$0.10 in January 2020.

Since its inception, the Company has devoted substantially all of its resources to organizing and staffing the Company, research and development activities, business planning, raising capital, in-licensing intellectual property rights and establishing its intellectual property portfolio, and providing general and administrative support for these operations. It has incurred losses and negative cash flows from operations since commencement of its operations. The Company had an accumulated deficit of \$4.3 million and cash of \$0.2 million as of September 30, 2020. From its inception through September 30, 2020, the Company had funded its operations through the capital contributions from Arena.

[Table of Contents](#)

In October 2020, the Company received aggregate gross proceeds of \$56.0 million from the sale and issuance of 5,600,000 shares of Series A Preferred Stock (see Note 10). Management believes that its capital resources, including the related proceeds received from the Series A Preferred Stock financing, will be sufficient to fund the Company's operations for at least twelve months after the date these financial statements are issued.

The Company plans to finance its future cash needs through public or private equity or debt financings or other capital sources, including potential collaborations, licenses and other similar arrangements. If the Company is not able to secure adequate additional funding, it may be forced to make reductions in spending, extend payment terms with suppliers, liquidate assets where possible, and/or delay or reduce the scope of its planned development programs. Any of these actions could materially harm the Company's business, results of operations and future prospects.

2. Summary of Significant Accounting Policies

Use of Estimates

The Company's financial statements are prepared in accordance with accounting principles generally accepted in the United States (GAAP). The preparation of the Company's financial statements requires the Company to make estimates and assumptions that impact the reported amounts of assets, liabilities and expenses and the disclosure of contingent assets and liabilities in the financial statements and accompanying notes. Such estimates include the accrual of research and development expenses and stock-based compensation. Management evaluates its estimates on an ongoing basis. Although estimates are based on the Company's historical experience, knowledge of current events and actions it may undertake in the future, actual results may ultimately materially differ from these estimates and assumptions.

Concentration of Credit Risk

Financial instruments which potentially subject the Company to significant concentration of credit risk consist of cash. The Company maintains deposits in federally insured financial institutions in excess of federally insured limits. The Company has not experienced any losses in such accounts, and management believes that the Company is not exposed to significant credit risk due to the financial position of the depository institutions in which those deposits are held.

Comprehensive Loss

Comprehensive loss is defined as the change in equity during a period from transactions and other events and circumstances from non-owner sources, including unrealized gains and losses on investments and foreign currency gains and losses. Net loss and comprehensive loss were the same for the period presented.

Fair Value of Financial Instruments

The carrying amounts of all other current assets and accrued expenses are considered to be representative of their respective fair values because of the short-term nature of those instruments.

Research and Development Expenses

Research and development expenses are expensed in the periods in which they are incurred. External expenses consist primarily of payments to Arena, outside consultants and contract research organizations in connection with the Company's discovery, preclinical and clinical activities, process development, manufacturing activities, regulatory and other services. External expenses are recognized based on an evaluation of the progress to completion of specific tasks using information provided to the Company by its service providers or the estimate of the level of service that has been performed at each reporting date. In addition to

[Table of Contents](#)

those external costs, the Company incurred research and development expenses through the services agreements described in Note 5. Research and development expenses amounted to \$2.5 million for the period from January 3, 2020 (inception) through September 30, 2020.

Stock-Based Compensation

Company employees participate in Arena's stock incentive plan and therefore the Company used Arena's Black-Scholes fair value, and underlying inputs and assumptions, to recognize stock-based compensation. Stock-based awards were measured at fair value and recognized over the requisite service period. Arena estimated the fair value of each stock option on the date of grant using the Black-Scholes option pricing model which requires the input of subjective assumptions, including price volatility of the underlying stock, risk-free interest rate, dividend yield, and expected life of the option. Expected volatility is computed using historical volatility for a period equal to the expected term. The expected term of options is determined based on historical experience of similar awards, giving consideration to the contractual terms of the stock-based awards, vesting schedules and post-vesting terminations. The risk-free interest rates are based on the U.S. Treasury yield curve, with a remaining term approximately equal to the expected term used in the option pricing model. The Company accounts for the forfeitures in the period they occur. There were no equity awards issued by the Company during the period from January 3, 2020 (inception) through September 30, 2020.

Income Taxes

The Company accounts for income taxes under the asset and liability method, which requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been included in the financial statements. Under this method, deferred tax assets and liabilities are determined on the basis of the differences between the financial statements and tax basis of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse. The effect of a change in tax rates on deferred tax assets and liabilities is recognized in income in the period that includes the enactment date.

The Company recognizes deferred tax assets to the extent that the Company believes these assets are more likely than not to be realized. In making such a determination, management considers all available positive and negative evidence, including future reversals of existing taxable temporary differences, projected future taxable income, tax-planning strategies, and results of recent operations. If management determines that the Company would be able to realize its deferred tax assets in the future in excess of their recorded amount, management would make an adjustment to the deferred tax asset valuation allowance, which would reduce the provision for income taxes.

As of September 30, 2020, the Company maintained valuation allowances against its deferred tax assets as the Company concluded it had not met the "more likely than not" to be realized threshold. Changes in the valuation allowance when they are recognized in the provision for income taxes would result in a change in the estimated annual effective tax rate.

Segment Reporting

Operating segments are identified as components of an enterprise about which separate discrete financial information is available for evaluation by the chief operating decision maker, or decision-making group, in making decisions regarding resource allocation and assessing performance. The Company views its operations and manages its business as one operating segment. No product revenue has been generated since inception and all assets are held in the United States.

Net Loss Per Share

Basic net loss per share is calculated by dividing the net loss attributable to common stockholders by the weighted-average number of shares of common stock outstanding during the period, without consideration of

potentially dilutive securities. Diluted net loss per share is computed by dividing the net loss attributable to common stockholders by the weighted-average number of shares of common stock and potentially dilutive securities outstanding for the period. As the Company has reported a net loss for the period presented and there were no potentially dilutive securities, diluted net loss per share of common stock is the same as basic net loss per share of common stock for the period.

Recent Accounting Pronouncements

In June 2018, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) No. 2018-07, *Compensation—Stock Compensation (Topic 718): Improvements to Non-employee Share-Based Payment Accounting*, which expands the scope of Topic 718 to include all share-based payment transactions for acquiring goods and services from nonemployees and simplifies the accounting for nonemployee share-based payment transactions. The accounting for share-based payments to nonemployees and employees will be substantially aligned because of this update. This ASU specifies that Topic 718 applies to all share-based payment transactions in which the grantor acquires goods and services to be used or consumed in its own operations by issuing share-based payment awards. This ASU also clarifies that Topic 718 does not apply to share-based payments used to effectively provide (i) financing to the issuer or (ii) awards granted in conjunction with selling goods or services to customers as part of a contract accounted for under FASB ASU No. 2014-09, *Revenue From Contracts with Customers (Topic 606)*. The transition method provided by ASU No. 2018-07 is a modified retrospective basis, which recognizes a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption. For public business entities, this ASU is effective for fiscal years beginning after December 15, 2018, and interim periods within those fiscal years. Early adoption is permitted but may take place no earlier than a company's adoption date of Topic 606, *Revenue from Contracts with Customers*. The Company adopted this standard as of January 3, 2020 (inception). The adoption of this ASU did not have an impact on the Company's financial statements and related disclosures.

In February 2016, the FASB issued ASU No. 2016-02, *Leases (Topic 842)* (ASU 2016-02), which supersedes FASB Accounting Standards Codification *Topic 840, Leases (Topic 840)*, and provides principles for the recognition, measurement, presentation and disclosure of leases for both lessees and lessors. The new standard requires lessees to apply a dual approach, classifying leases as either finance or operating leases based on the principle of whether or not the lease is effectively a financed purchase by the lessee. This classification will determine whether lease expense is recognized based on an effective interest method for finance leases or on a straight-line basis over the term of the lease for operating leases. A lessee is also required to record a right-of-use asset and a lease liability for all leases with a term of greater than 12 months regardless of classification. Leases with a term of 12 months or less will be accounted for similar to existing guidance for operating leases. For companies that are not emerging growth companies, ASU 2016-02 is effective for fiscal years beginning after December 15, 2018. For emerging growth companies, the ASU was to be effective for fiscal years beginning after December 15, 2019. However, in November 2019, the FASB issued ASU 2019-10, *Financial Instruments—Credit Losses (Topic 326), Derivatives and Hedging (Topic 815) and Leases (Topic 842): Effective Dates* (ASU 2019-10), which included a one-year deferral of the effective date of ASU 2016-02 for certain entities. As a result, the ASU is now effective for emerging growth companies for fiscal years beginning after December 15, 2020, and interim periods within fiscal years beginning after December 15, 2021. The Company expects to adopt the new standard in the first quarter of 2021 using the modified retrospective method, under which the Company will apply Topic 842 to existing and new leases as of January 1, 2021, but prior periods will not be restated and will continue to be reported under Topic 840 guidance in effect during those periods. The Company is currently evaluating the impact the adoption of these ASUs will have on its financial statements and related disclosures.

In December 2019, the FASB issued ASU 2019-12, *Income Taxes—Simplifying the Accounting for Income Taxes* (ASU 2019-12). Among other items, the amendments in ASU 2019-12 simplify the accounting treatment of tax law changes and year-to-date losses in interim periods. An entity generally recognizes the effects of a change in tax law in the period of enactment; however, there is an exception for tax laws with delayed effective

dates. Under current guidance, an entity may not adjust its annual effective tax rate for a tax law change until the period in which the law is effective. This exception was removed under ASU 2019-12, thereby providing that all effects of a tax law change are recognized in the period of enactment, including adjustment of the estimated annual effective tax rate. Regarding year-to-date losses in interim periods, an entity is required to estimate its annual effective tax rate for the full fiscal year at the end of each interim period and use that rate to calculate its income taxes on a year-to-date basis. However, current guidance provides an exception that when a loss in an interim period exceeds the anticipated loss for the year, the income tax benefit is limited to the amount that would be recognized if the year-to-date loss were the anticipated loss for the full year. ASU 2019-12 removes this exception and provides that, in this situation, an entity would compute its income tax benefit at each interim period based on its estimated annual effective tax rate. ASU 2019-12 is effective for fiscal years beginning after December 15, 2020, including interim periods within those annual periods. Early adoption is permitted. The Company does not expect the ASU to have a material impact on its financial statements and related disclosures.

Risks and Uncertainties

In December 2019, COVID-19, a novel strain of coronavirus, was first reported in Wuhan, China and has since become a global pandemic. The virus continues to spread globally, has been declared a pandemic by the World Health Organization and has spread to over 100 countries, including the United States. The impact of this pandemic has been and will likely continue to be extensive in many aspects of society, which has resulted in and will likely continue to result in significant disruptions to the global economy, as well as businesses and capital markets around the world.

Potential impacts to the Company's business include, but are not limited to, temporary closures of those facilities of its vendors, disruptions or restrictions on its employees' ability to travel, disruptions to or delays in ongoing laboratory experiments, preclinical studies, clinical trials, third-party manufacturing supply and other operations, the potential diversion of healthcare resources away from the conduct of clinical trials to focus on pandemic concerns, interruptions or delays in the operations of the U.S. Food and Drug Administration or other regulatory authorities, and the Company's ability to raise capital and conduct business development activities.

3. Fair Value Measurements

The accounting guidance defines fair value, establishes a consistent framework for measuring fair value and expands disclosure for each major asset and liability category measured at fair value on either a recurring or nonrecurring basis. Fair value is defined as an exit price, representing the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or liability. As a basis for considering such assumptions, the accounting guidance establishes a three-tier fair value hierarchy, which prioritizes the inputs used in measuring fair value as follows:

Level 1 — Unadjusted quoted prices in active markets that are accessible at the measurement date for identical, unrestricted assets or liabilities.

Level 2 — Quoted prices for similar assets and liabilities in active markets, quoted prices in markets that are not active, or inputs which are observable, either directly or indirectly, for substantially the full term of the asset or liability.

Level 3 — Prices or valuation techniques that require inputs that are both significant to the fair value measurement and unobservable (i.e. supported by little or no market activity).

As of September 30, 2020, the Company did not have financial assets that are measured at fair value on a recurring basis.

4. Accrued Expenses

Accrued expenses consisted of the following (in thousands):

	September 30, 2020
Accrued legal fees	\$ 142
Accrued other	6
	<u>\$ 148</u>

5. Agreements with Arena Pharmaceuticals, Inc.

The Company entered into a license agreement (License Agreement), a services agreement (Services Agreement), and a royalty purchase agreement (Royalty Purchase Agreement) in October 2020 with Arena. The following section summarizes these related party agreements.

License Agreement

Pursuant to the License Agreement, the Company obtained an exclusive, royalty bearing, sublicensable, worldwide license under certain know-how and patents of Arena to develop and commercialize LP352 for any use in humans, LP143 for the treatment of any CNS indication in humans (excluding the treatment, prevention or amelioration of pain or any gastrointestinal, non-CNS autoimmune or cardiovascular disorder), and LP659 for the treatment of selected CNS indications in humans (pharmaceutical products containing any such compounds, Licensed Products). As consideration for the rights granted to the Company under the License Agreement, the Company will be required to pay to Arena a mid-single digit royalty on net sales of Licensed Products of LP352, and a low-single digit royalty on net sales of all other Licensed Products, by the Company, its affiliates or its sublicensees, subject to standard reductions. The Company's royalty obligations continue on a Licensed Product-by-Licensed Product and country-by-country basis until the later of the (i) tenth anniversary of the first commercial sale of such product in such country or (ii) expiration of the last-to-expire valid claim of the patents licensed by us under the License Agreement covering the manufacture, use or sale of such product in such country.

Services Agreement

In connection with the License Agreement, the Company also entered into a Services Agreement with Arena under which Arena agreed to perform certain research and development services, general administrative services, management services and other mutually agreed services for the Company and receive service fees therefor on an hourly rate based on an annual full time equivalent rate agreed upon by the parties. Arena will invoice the Company for services provided on a monthly basis, in arrears. The Services Agreement shall continue until December 31, 2021, and shall automatically renew for successive one-year terms unless terminated by either party.

Royalty Purchase Agreement

In October 2020, the Company entered into a Royalty Purchase Agreement with 356 Royalty Inc., a wholly owned subsidiary of Arena (356 Royalty) and Arena, pursuant to which we purchased the right to receive all milestone payments, royalties, interest and other payments relating to net sales of lorcaserin, owed or otherwise payable to 356 Royalty by Eisai Inc. and Eisai Co., Ltd. pursuant to the Transaction Agreement, by and among 356 Royalty, Eisai Inc. and Eisai Co., Ltd. The Company made a one-time payment to Arena of \$0.1 million.

6. Stock-Based Compensation

As of September 30, 2020, the Company did not have its own equity incentive plan. Stock options that were granted to employees of the Company as of September 30, 2020 have been granted under the Arena Amended

[Table of Contents](#)

and Restated 2017 Long-Term Incentive Plan (Arena 2017 LTIP), a plan approved by Arena's stockholders. Under the Arena 2017 LTIP, Arena may grant incentive stock options, non-statutory stock options, stock appreciation rights, restricted stock awards, restricted stock unit awards and performance awards. Subsequent to the Series A Preferred Stock financing, the employees of the Company are no longer eligible to participate in the Arena 2017 LTIP.

Stock Options

Under the Arena 2017 LTIP, 70,000 stock options were granted to an employee of the Company during the period ended September 30, 2020. Stock options under the Arena 2017 LTIP generally vest over four years with 25% of the shares subject to each option vesting on the first anniversary of the grant date and the remainder vesting monthly over the following three years in equal installments and have contractual terms of seven years. All option grants provide for an option exercise price equal to the closing market value share of Arena's common stock on the date of grant.

The following table presents the assumptions used for the stock option grants for the period from January 3, 2020 (inception) through September 30, 2020, along with the related grant date fair value:

	For the Period January 3, 2020 (Inception) through September 30, 2020
Stock price	\$ 44.60
Risk-free interest rate	0.89%
Dividend yield	0.00%
Expected volatility	\$ 57.80
Expected life (years)	4.5
Estimated fair value per share of stock options granted	\$ 21.02

The Company recognized \$1.1 million of stock-based compensation expense for the period ended September 30, 2020, which \$0.9 million and \$0.2 million were included in general and administrative and research and development expenses, respectively, on the statement of operations and comprehensive loss.

7. Income Taxes

Significant components of the Company's provision for income taxes and income taxes computed using the U.S. federal statutory corporate tax rate were as follows (in thousands):

	For the Period January 3, 2020 (Inception) through September 30, 2020
Benefit for income taxes at statutory federal rate	\$ (922)
Permanent items	13
Research and development credits	(87)
Change in valuation allowance	996
Provision for income taxes	<u>\$ —</u>

[Table of Contents](#)

Significant components of the Company's deferred taxes were as follows (in thousands):

	September 30, 2020
Deferred tax assets:	
Net operating loss carryforward	\$ 674
Research and development carryforwards	87
Stock-based compensation expense	228
Other, net	7
Total deferred tax assets	996
Less: Valuation allowance	(996)
Net deferred tax assets	\$ —

Deferred income taxes reflect the net tax effects of temporary differences between the carrying amount of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. The Company has established a valuation allowance against net deferred tax assets due to the uncertainty that such assets will be realized. The Company will periodically evaluate the recoverability of its deferred tax assets. Due to the Company's losses, management determined it more likely than not that the deferred tax asset will not be realized. The valuation allowance for the period ended September 30, 2020 was \$1.0 million.

As of September 30, 2020, the Company had federal net operating loss (NOL) carryforwards of \$3.2 million that will not expire. As of September 30, 2020, the Company also had federal and California research and development tax credit carryforwards, net of reserves, of \$58,000 and \$29,000, respectively. Federal credit carryforwards will begin to expire after 2040 unless previously utilized. The California research and development credit carries forward indefinitely.

Pursuant to the Internal Revenue Code of 1986, as amended (IRC), Sections 382 and 383, annual use of the Company's NOL and research and development credit carryforwards may be limited in the event a cumulative change in ownership of more than 50% occurs within a three-year period. The Company has not completed an ownership change analysis pursuant to IRC Section 382. If ownership changes have occurred or occurs in the future, the amount of remaining tax attribute carryforwards available to offset taxable income and income tax expense in future years may be restricted or eliminated. If eliminated, the related asset would be removed from deferred tax assets with a corresponding reduction in the valuation allowance. Due to the existence of the valuation allowance, limitations created by future ownership changes, if any, will not impact the Company's effective tax rate.

Uncertain tax positions are evaluated based upon the facts and circumstances that exist at each reporting period. Subsequent changes in judgement based upon new information may lead to changes in recognition, derecognition, and measurement. Adjustment may result, for example, upon resolution of an issue with the taxing authorities or expiration of a statute of limitations barring an assessment for an issue.

The Company recognizes a tax benefit from an uncertain tax position when it is more likely than not that the position will be sustained upon examination by tax authorities.

As of September 30, 2020, the Company had gross unrecognized tax benefits of \$17,000, none of which would affect the effective tax rate if recognized. The Company does not anticipate any significant changes in its unrecognized tax benefits over the next 12 months. The Company's policy is to recognize interest expense and/or penalties related to income tax matters as a component of income tax expense. The Company had no accrual for interest or penalties on its balance sheet as of September 30, 2020 and has not recognized interest and/or penalties in its statement of operations and comprehensive loss for the period ended September 30, 2020.

The Company is subject to taxation in the United States and California. The Company is not currently under examination by any taxing authorities. Due to the carryover nature of tax attributes, the statute of limitations is currently open for tax years since inception.

8. Commitments and Contingencies

Leases

The Company leases certain office space in San Diego, California under a month to month lease. Rent payments are approximately \$1,000 per month. Rent expense totaled approximately \$6,300 for the period January 3, 2020 (inception) through September 30, 2020.

Contingencies

From time to time, the Company may become subject to claims or suits arising in the ordinary course of business. The Company accrues a liability for such matters when it is probable that future expenditures will be made and such expenditures can be reasonably estimated. As of September 30, 2020, the Company is not a party to any litigation.

9. Employment Benefits

The Company's employees participate in Arena's employee 401(k) salary deferral plan, which covers all Arena employees. Employees may make contributions by withholding a percentage of their salary up to the IRC annual limit. The Company made matching contributions of \$14,000 for the period ended September 30, 2020.

10. Subsequent Events

The Company has evaluated subsequent events through December 15, 2020, the date the financial statements were issued. Except as described below, the Company has concluded that no subsequent events have occurred that require disclosure.

Amended and Restated Certificate of Incorporation

In October 2020, the Company amended and restated the Company's certificate of incorporation to, among other things, increase the authorized shares of common stock and preferred stock to 10,500,000 shares and 5,600,000 shares, respectively, and to establish the Series A Preferred Stock and the rights, preferences, powers and privileges thereof.

Series A Preferred Stock

In October 2020, the Company authorized and issued 5,600,000 shares of its Series A Preferred Stock at a price of \$10.00 per share resulting in gross proceeds of \$56.0 million, including 100,000 shares purchased by Arena.

The Series A Preferred Stock has the following terms:

Dividends

Holders of the Series A Preferred Stock, in preference to any distributions to the holders of common stock, shall be entitled to receive dividends at a rate 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 equal to the product of (a) the dividend payable on each share of such class as if each share had been converted to common stock and (b) the number of shares of common stock issuable upon conversion of a share of Series A Preferred Stock or in the case of a dividend on any class of series that is not convertible into common stock, at a rate per share of Series A Preferred Stock

[Table of Contents](#)

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 and (b) multiplying such fraction by the original issuance price of the Series A Preferred Stock of \$10.00 per share (Original Issue Price). Such dividends shall be payable only when and if declared by the Company's board of directors and shall not be cumulative.

Preference on Liquidation

The holders of the Series A Preferred Stock are entitled to receive liquidation preferences at the Original Issue Price, plus all accrued and declared but unpaid dividends. Liquidation payments to the holders of the Series A Preferred Stock have priority and are made in preference to any payments to the holders of common stock. After full payment of the liquidation preference to the holders of the Series A Preferred Stock, the remaining assets, if any, will be distributed ratably to the holders of the common stock.

A liquidation event is deemed to occur unless at least a majority of the outstanding shares of convertible preferred stock elects otherwise, if the Company (i) merges or consolidates with any other company, and the stockholders of the Company no longer own at least a majority of the voting power of the surviving entity, (ii) sells all or substantially all of the Company's assets, and (iii) sells or disposes of one or more subsidiary holding substantially all of the Company's assets, to a party not owned by the Company.

Conversion Rights

The shares of Series A Preferred Stock are convertible into an equal number of shares of common stock, at the option of the holder, subject to certain anti-dilution adjustments. The conversion rate for the convertible preferred stock is determined by dividing the Original Issue Price, as adjusted for stock splits, by the conversion price. The conversion price is initially equal to the Original Issue Price, but is subject to adjustment for dividends, stock splits, and other distributions. The Series A Preferred Stock will initially convert on a one-for-one basis into shares of the Company's common stock. Each share of Series A Preferred Stock will automatically convert into shares of common stock at the then-effective conversion rate (i) upon the closing of the sale of shares of common stock to the public at a price of at least 1.33 times the Original Issue Price (subject to appropriate adjustment), 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 \$50.0 million of gross proceeds to the Company and in connection with such offering, the common stock is listed for trading on the Nasdaq Stock Market's National Market, the New York Stock Exchange or another exchange or marketplace approved by the Company's board of directors, including at least one director appointed by the holders of Series A Preferred Stock, or (ii) upon written request for such conversion from the holders of at least a majority of the outstanding shares of Series A Preferred Stock.

Redemption Rights

The holders of Series A Preferred Stock do not have any redemption rights.

Voting

The holder of each share of Series A Preferred Stock is entitled to one vote for each share of common stock into which it would convert. The approval of the holders of a majority of the voting power of the outstanding shares of convertible preferred stock are required in order to take the following actions: amend or repeal any provisions in the charter or bylaws if it would adversely impact the convertible preferred stock holders, authorize, issue or obligate the issuance of options or shares (or securities convertible or exchangeable for options or shares) of any class superior to or on a parity with the convertible preferred stock, reclassify any common stock into shares having rights superior to or on a parity with the convertible preferred stock, increase the authorized number of shares of preferred stock, increase or reduce the authorized number of members of the board of directors, and create or hold capital stock in any subsidiary not wholly owned by the Company, dispose of any

capital stock of any subsidiary or permit any subsidiary to dispose of all or substantially all of the assets of such subsidiary.

Forward Stock Split

On October 27, 2020, the Company filed an amendment to the Company's certificate of incorporation to effect the Forward Stock Split. The par value of the common stock was not adjusted as a result of the Forward Stock Split and the authorized shares were increased to 2,783,000 shares of common stock in connection with the Forward Stock Split. The accompanying financial statements and notes to the financial statements give retroactive effect to the Forward Stock Split for the period presented.

License Agreement, Service Agreement, and Royalty Purchase Agreement with Arena

The Company entered into the License Agreement, Services Agreement, and Royalty Purchase Agreement in October 2020 with Arena. See Note 5 for further details.

Separation Agreement

In October 2020, in connection with the financing transaction and the formal commencement of Kevin Lind's employment with the Company, Mr. Lind entered into a Separation Agreement with Arena (Separation Agreement). Pursuant to the Separation Agreement, Mr. Lind voluntarily resigned his employment with Arena, effective October 27, 2020. Such resignation did not affect Mr. Lind's status as the President and Chief Executive Officer of the Company. The Separation Agreement provided for the acceleration of vesting and the extension of the exercise period for certain of his equity awards outstanding at Arena as of the separation date.

Adoption of 2020 Equity Incentive Plan

In October 2020, the Company's board of directors and stockholders approved the 2020 Equity Incentive Plan (the 2020 Plan). Under the terms of the 2020 Plan, the Company may issue (1) stock options (incentive and nonstatutory), (2) stock appreciation rights, (3) restricted stock awards, (4) restricted stock units and (5) other stock awards. The 2020 Plan authorized and provides for the issuance of up to 1,717,000 shares of common stock, which amount will be increased to the extent that awards granted under the 2020 Plan are forfeited, expire or are settled for cash (except as otherwise provided in the 2020 Plan). The Company's board of directors determines the exercise price, vesting and expiration period of the grants under the 2020 Plan.

Stock Award Grants

From October 2020 through November 2020, 252,500 restricted stock awards and 595,900 stock options were granted to the Company's employees and consultants under the 2020 Plan, which vest over two years and four years, respectively, from the date of grant.

Shares

Longboard Pharmaceuticals, Inc.

Common Stock



PRELIMINARY PROSPECTUS

, 2021

Citigroup

Evercore ISI

Guggenheim Securities

Cantor

Through and including _____, 2021 (the 25th day after the date of this prospectus), all dealers that effect transactions in these securities, whether or not participating in this offering, may be required to deliver a prospectus. This is in addition to a dealer's obligation to deliver a prospectus when acting as an underwriter and with respect to an unsold allotment or subscription.

PART II
INFORMATION NOT REQUIRED IN PROSPECTUS

Unless otherwise indicated, all references to “Longboard,” the “company,” “we,” “our,” “us” or similar terms refer to Longboard Pharmaceuticals, Inc.

Item 13. Other Expenses of Issuance and Distribution.

The following table sets forth all expenses to be paid by us, other than underwriting discounts and commissions, in connection with this offering. All amounts shown are estimates except for the Securities and Exchange Commission (SEC) registration fee, the Financial Industry Regulatory Authority, Inc. (FINRA) filing fee and the exchange listing fee.

SEC registration fee	\$	*
FINRA filing fee		*
Exchange listing fee		*
Printing and engraving expenses		*
Legal fees and expenses		*
Accounting fees and expenses		*
Custodian transfer agent and registrar fees		*
Miscellaneous expenses		*
Total	\$	*

* To be provided by amendment.

Item 14. Indemnification of Directors and Officers.

Section 145 of the Delaware General Corporation Law authorizes a court to award, or a corporation’s board of directors to grant, indemnity to directors and officers in terms sufficiently broad to permit such indemnification under certain circumstances for liabilities, including reimbursement for expenses incurred, arising under the Securities Act. Our amended and restated certificate of incorporation that will be in effect on the closing of this offering permits indemnification of our directors, officers, employees and other agents to the maximum extent permitted by the Delaware General Corporation Law, and our amended and restated bylaws that will be in effect upon the closing of this offering provide that we will indemnify our directors and officers and permit us to indemnify our employees and other agents, in each case to the maximum extent permitted by the Delaware General Corporation Law.

We have entered into indemnification agreements with our directors and officers, whereby we have agreed to indemnify our directors and officers to the fullest extent permitted by law, including indemnification against expenses and liabilities incurred in legal proceedings to which the director or officer was, or is threatened to be made, a party by reason of the fact that such director or officer is or was a director, officer, employee, or agent of Longboard Pharmaceuticals, Inc., provided that such director or officer acted in good faith and in a manner that the director or officer reasonably believed to be in, or not opposed to, the best interest of Longboard Pharmaceuticals, Inc.

At present, there is no pending litigation or proceeding involving a director or officer of Longboard Pharmaceuticals, Inc. regarding which indemnification is sought, nor is the registrant aware of any threatened litigation that may result in claims for indemnification.

We maintain insurance policies that indemnify our directors and officers against various liabilities arising under the Securities Act and the Securities Exchange Act of 1934, as amended, that might be incurred by any director or officer in his capacity as such.

The underwriters are obligated, under certain circumstances, under the underwriting agreement to be filed as Exhibit 1.1 to this Registration Statement, to indemnify us and our officers and directors against liabilities under the Securities Act.

Item 15. Recent Sales of Unregistered Securities.

Set forth below is information regarding unregistered securities issued by us since our inception on January 3, 2020. Also included is the consideration received by us for such securities and information relating to the section of the Securities Act, or rule of the SEC, under which exemption from registration was claimed.

1. In January 2020, we sold and issued an aggregate of 1,000 shares of common stock to Arena Pharmaceuticals, Inc. at a purchase price of \$0.0001 per share for aggregate consideration of \$0.10. On October 27, 2020, the Company effectuated a 2,783-for-one forward stock split of our common stock. The aforementioned per-share amount does not take into account the effect of the forward stock split.
2. In October 2020, we sold and issued an aggregate of 5,600,000 shares of Series A preferred stock to a total of 17 accredited investors at a purchase price of \$10.00 per share, for an aggregate purchase price of \$56.0 million.
3. In October 2020, we sold and issued an aggregate of 252,000 shares of our common stock pursuant to a restricted stock award grant notice to Kevin R. Lind, our Chief Executive Officer, Chief Financial Officer and director, as consideration for his services to us.
4. From January 3, 2020 to the effective date of this registration statement, we granted stock options under our 2020 equity incentive plan, as amended (the Prior Plan), to purchase up to an aggregate of _____ shares of our common stock to our employees, directors and consultants, at a weighted-average exercise price of \$ _____ per share. Through the effective date of this registration statement, _____ shares of common stock were issued upon the exercise of options granted to employees, directors and consultants and payment of \$ _____ to us was made.

None of the foregoing transactions involved any underwriters, underwriting discounts or commissions, or our public offering. Unless otherwise specified above, we believe that the transactions described in paragraphs 1 and 2 were exempt from registration under the Securities Act in reliance on Section 4(a)(2) of the Securities Act (and Regulation D promulgated thereunder). The recipients of the securities in each of these transactions represented their intentions to acquire the securities for investment only and not with a view to or for sale in connection with any distribution thereof, and appropriate legends were placed on the share certificates issued in these transactions. All recipients had adequate access, through their relationships with us, to information about us. The sales of these securities were made without any general solicitation or advertising.

The offers, sales and issuances of the securities described in paragraphs (3) and (4) were deemed to be exempt from registration under the Securities Act in reliance on either Rule 701 in that the transactions were under compensatory benefit plans and contracts relating to compensation as provided under Rule 701 or Section 4(a)(2) in that the issuance of securities to the accredited investors did not involve a public offering. The recipients of such securities were our employees, directors or bona fide consultants and received the securities under the Prior Plan.

Item 16. Exhibits and Financial Statement Schedules.

(a) Exhibits.

<u>Exhibit Number</u>	<u>Description</u>
1.1+	Form of Underwriting Agreement.
3.1	Amended and Restated Certificate of Incorporation, as currently in effect.
3.2+	Form of Amended and Restated Certificate of Incorporation, to be in effect immediately prior to the closing of this offering.
3.3	Amended and Restated Bylaws, as currently in effect.
3.4+	Form of Amended and Restated Bylaws, to be in effect upon the closing of this offering.
4.1+	Form of Common Stock Certificate.
4.2	Investors' Rights Agreement by and among the registrant and certain of its stockholders, dated October 27, 2020.
5.1+	Opinion of Cooley LLP.
10.1 ¥	Longboard Pharmaceuticals, Inc. 2020 Equity Incentive Plan.
10.2 ¥	Forms of grant notice, stock option agreement and notice of exercise under the Longboard Pharmaceuticals, Inc. 2020 Equity Incentive Plan.
10.3 ¥ +	Longboard Pharmaceuticals, Inc. 2021 Equity Incentive Plan.
10.4 ¥ +	Forms of grant notice, stock option agreement and notice of exercise under the Longboard Pharmaceuticals, Inc. 2021 Equity Incentive Plan.
10.5 ¥ +	Forms of restricted stock unit grant notice and award agreement under the Longboard Pharmaceuticals, Inc. 2021 Equity Incentive Plan.
10.6 ¥ +	Longboard Pharmaceuticals, Inc. 2021 Employee Stock Purchase Plan.
10.7 ¥ +	Form of Indemnification Agreement by and between the registrant and each director and executive officer.
10.8+	Non-Employee Director Compensation Policy.
10.9 ¥	Employment Agreement by and between the registrant and Kevin R. Lind, dated October 27, 2020.
10.10+ ¥	Offer letter by and between the registrant and Philip Perera, M.D., dated November 6, 2020.
10.11*	License Agreement by and between the registrant and Arena Pharmaceuticals, Inc., dated October 27, 2020.
10.12	Royalty Purchase Agreement by and among the registrant, Arena Pharmaceuticals, Inc. and 356 Royalty Inc., dated October 27, 2020.
10.13‡	Services Agreement by and between the registrant and Arena Pharmaceuticals, Inc., dated October 27, 2020.
23.1+	Consent of KPMG LLP, independent registered public accounting firm.
23.2+	Consent of Cooley LLP (included in Exhibit 5.1).
24.1+	Power of Attorney (see signature pages).

+ To be filed by amendment.

* Certain portions of this exhibit are omitted because they are not material and would likely cause competitive harm to the registrant if disclosed.

Table of Contents

- ¥ Indicates management contract or compensatory plan
- ‡ Schedules have been omitted pursuant to Item 601(a)(5) of Regulation S-K. The registrant undertakes to furnish supplemental copies of any of the omitted schedules upon request by the SEC.

(b) Financial Statement Schedules.

All financial statement schedules are omitted because the information required to be set forth therein is not applicable or is shown in the financial statements or the notes thereto.

Item 17. Undertakings.

(a) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the registrant under 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.

(b) The undersigned registrant hereby undertakes that:

(1) 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 on Rule 430A and contained in a form of prospectus filed by the registrant under Rule 424(b)(1) or (4) or 497(h) under the Securities Act will be deemed to be part of this registration statement as of the time it was declared effective.

(2) For the purpose of determining any liability under the Securities Act of 1933, as amended, each post-effective amendment that contains a form of prospectus will be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time will be deemed to be the initial bona fide offering thereof.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in San Diego, California on _____, 2021.

LONGBOARD PHARMACEUTICALS, INC.

By: _____
Name: Kevin R. Lind
Title: President, Chief Executive Officer and Chief Financial Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Kevin R. Lind as his or her true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for him or her and in their name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this registration statement, and to sign any registration statement for the same offering covered by this registration statement that is to be effective on filing pursuant to Rule 462(b) under the Securities Act of 1933, as amended, and all post-effective amendments thereto, and to file the same, with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorney-in-fact and agent, full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agent, or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, as amended, 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>
_____ Kevin R. Lind	President, Chief Executive Officer, Chief Financial Officer and Director <i>(Principal Executive Officer, Financial and Accounting Officer)</i>	_____, 2021
_____ Vincent E. Aurentz	Director	_____, 2021
_____ Chandra P. Leo, M.D.	Director	_____, 2021
_____ Phillip M. Schneider	Director	_____, 2021
_____ Paul J. Sekhri	Director	_____, 2021
_____ Laurie D. Stelzer	Director	_____, 2021

**AMENDED AND RESTATED
CERTIFICATE OF INCORPORATION
OF
LONGBOARD PHARMACEUTICALS, INC.**

(Pursuant to Sections 242 and 245 of the
General Corporation Law of the State of Delaware)

Longboard Pharmaceuticals, 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. The original name of this corporation was Arena Neuroscience, Inc., and this corporation was originally incorporated pursuant to the General Corporation Law on January 3, 2020.

2. That the Board of Directors of this corporation duly adopted resolutions proposing to amend and restate the Certificate of Incorporation of this corporation, 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 Certificate of Incorporation of this corporation be amended and restated in its entirety to read as follows:

FIRST: The name of this corporation is Longboard Pharmaceuticals, Inc. (the “**Corporation**”).

SECOND: The address of the registered office of the Corporation in the State of Delaware is 251 Little Falls Drive, City of Wilmington, County of New Castle, 19808. The name of its registered agent at such address is Corporation Service 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) 10,500,000 shares of Common Stock, \$0.0001 par value per share (“**Common Stock**”) and (ii) 5,600,000 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). Unless required by 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 this Amended and Restated 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

5,600,000 shares of the authorized and unissued Preferred Stock of the Corporation are hereby designated “**Series A Preferred Stock**” with the following rights, preferences, powers, privileges and restrictions, qualifications and limitations. Unless otherwise indicated, references to “sections” or “Sections” in this Part B of this Article Fourth refer to sections and Sections of Part B of this Article Fourth. References to “Preferred Stock” mean the Series A Preferred Stock.

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 this Amended and Restated Certificate of Incorporation) the holders of the Preferred Stock then outstanding shall first receive, or simultaneously receive, a dividend on each outstanding share 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 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 Preferred Stock, 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 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 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 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. The “**Original Issue Price**” shall mean, with respect to the Series A Preferred Stock, \$10.00 per share, subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the applicable Preferred Stock.

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, the holders of shares of Preferred Stock then outstanding shall be entitled to be paid out of the assets of the Corporation available for distribution to its stockholders, and in the event of a Deemed Liquidation Event (as defined below), the holders of shares of Preferred Stock then outstanding shall be entitled to be paid out of the consideration payable to stockholders in such Deemed Liquidation Event or out of the Available Proceeds (as defined below), as applicable, before any payment shall be made to the holders of Common Stock by reason of their ownership thereof, an amount per share equal to the greater of (i) one times the Original Issue Price, plus any dividends declared but unpaid thereon, or (ii) such amount per share as would have been payable had all shares of 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 sentence is hereinafter referred to as 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 Preferred Stock the full amount to which they shall be entitled under this Section 2.1, the holders of shares 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.

2.2 Payments to Holders of Common Stock. In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Corporation, after the payment in full of all Liquidation 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 or, in the case of a Deemed Liquidation Event, the consideration not payable to the holders of shares of Preferred Stock pursuant to Section 2.1 or the remaining Available Proceeds, as the case may be, shall be distributed among the holders of shares of Common Stock, pro rata based on the number of shares 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 the holders of at least a majority of the outstanding shares of Preferred Stock (the “**Requisite Holders**”) elect otherwise by written notice sent to the Corporation at least 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; or

(b) (1) 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 business or assets of the Corporation and its subsidiaries taken as a whole or (2) the sale or disposition (whether by merger, consolidation or otherwise, and whether in a single transaction or a series of related transactions) 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 Corporation.

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 Section 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 in such Deemed Liquidation Event shall be allocated to the holders of capital stock of the Corporation in accordance with Sections 2.1 and 2.2.

(b) In the event of a Deemed Liquidation Event referred to in Section 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 ninety (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 ninetieth (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) if the Requisite Holders so request in a written instrument delivered to the Corporation not later than one hundred twenty (120) days after such Deemed Liquidation Event, 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, all to the extent permitted by Delaware law governing distributions to stockholders (the “**Available Proceeds**”), on the one hundred fiftieth (150th) day after such Deemed Liquidation Event, to redeem all outstanding shares of 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 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 as soon as it may lawfully do so under Delaware law governing distributions to stockholders. Prior to the distribution or redemption provided for in this Section 2.3.2(b), 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 to be paid or distributed to such holders pursuant to such Deemed Liquidation Event. The value of such property, rights or securities shall be determined in good faith by the Board of Directors of the Corporation, including the approval of at least one Preferred Director (as defined herein) to the extent that at least one Preferred Director is then serving.

2.3.4 Allocation of Escrow and Contingent Consideration. In the event of a Deemed Liquidation Event pursuant to Section 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 Consideration**”) shall be allocated among the holders of capital stock of the Corporation in accordance with Sections 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 Sections 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 Section 2.3.4, consideration placed into escrow or retained as a 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 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 Preferred Stock held by such holder are convertible 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 this Amended and Restated Certificate of Incorporation, holders of Preferred Stock shall vote together with the holders of Common Stock as a single class and on an as-converted to Common Stock basis.

3.2 Election of Directors. The holders of record of the shares of Preferred Stock, exclusively and as a separate class, shall be entitled to elect two directors of the Corporation (the “**Preferred Directors**”) and the holders of record of the shares of Common Stock, exclusively and as a separate class, shall be entitled to elect three directors of the Corporation. 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 or Common Stock, as the case may be, 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 Section 3.2, then any directorship not so filled shall remain vacant until such time as the holders of the Preferred Stock or Common Stock, as the case may be, 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 Section 3.2, a vacancy in any directorship filled by the holders of any class or classes or series shall be filled only by vote or written consent in lieu of a meeting of the holders of such class or classes or series or by any remaining director or directors elected by the holders of such class or classes or series pursuant to this Section 3.2. Notwithstanding anything to the contrary contained herein, any vacancy, including newly created directorships resulting from any increase in the authorized number of directors, and vacancies created by removal or resignation

of a director, may be filled by a majority of the directors then in office, though less than a quorum, or by a sole remaining director, and the directors so chosen shall hold office until the next annual election and until their successors are duly elected and qualified, unless sooner displaced; provided, however, that where such vacancy is a director seat that the holders of a class or series of capital stock are entitled to fill, the holders of such class or series may override the Board's action to fill such vacancy (or replace the director appointed by the Board to fill such vacancy at any time), by (i) voting for their own designee to fill such vacancy (or to replace such director appointed by the Board to fill such vacancy) at a meeting of the Corporation's stockholders or (ii) written consent, if the consenting stockholders hold a sufficient number of shares to elect their designee at a meeting of the stockholders in which all members of such class or series are present and voted. The rights of the holders of the Preferred Stock and the rights of the holders of the Common Stock under the first sentence of this Section 3.2 shall terminate on the first date following the time at which the first share of Series A Preferred Stock was issued (the "**Original Issue Date**") on which there are issued and outstanding less than 1,680,000 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).

3.3 Preferred Stock Protective Provisions. At any time when at least 1,680,000 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, recapitalization, reclassification, or otherwise, do any of the following without (in addition to any other vote required by law or this Amended and Restated Certificate of Incorporation) the written consent or affirmative vote of the Requisite Holders 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.

3.3.1 liquidate, dissolve or wind-up the business and affairs of the Corporation, effect any merger or consolidation or any other Deemed Liquidation Event, or consent to any of the foregoing, if such transaction would result in holders of Preferred Stock receiving less than two times the Original Issue Price per share in such transaction;

3.3.2 amend, alter or repeal any provision of this Amended and Restated Certificate of Incorporation or the Bylaws of the Corporation in a manner that adversely affects the powers, preferences or rights of the Preferred Stock;

3.3.3 (i) create, or authorize the creation of, or issue or obligate itself to issue shares of, or reclassify, any capital stock unless the same ranks junior to the Preferred Stock with respect to its rights, preferences and privileges, or (ii) increase the authorized number of shares of Preferred Stock or any additional class or series of capital stock of the Corporation unless the same ranks junior to the Preferred Stock with respect to its rights, preferences and privileges;

3.3.4 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, (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 no greater than the lower of the original purchase price thereof or the fair market value thereof at such time or (iv) as approved by the Board of Directors of the Corporation, including the approval of at least one Preferred Director, to the extent that at least one Preferred Director is then serving;

3.3.5 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 permit any subsidiary to create, or authorize the creation of, or issue or obligate itself to issue, any shares of any class or series of capital stock, 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; or

3.3.6 increase or decrease the size of the Board of Directors of the Corporation.

4. Optional Conversion. The holders of the Preferred Stock shall have conversion rights as follows (the “**Conversion Rights**”):

4.1 Right to Convert.

4.1.1 Conversion Ratio. Each share of 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 non-assessable shares of Common Stock as is determined by dividing the Original Issue Price by the Conversion Price (as defined below) in effect at the time of conversion. The “**Conversion Price**” applicable to the Series A Preferred Stock shall initially be equal to \$10.00. Such initial Conversion Price, and the rate at which shares 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 Preferred Stock; provided that the foregoing termination of Conversion Rights shall not affect the amount(s) otherwise paid or payable in accordance with Section 2.1 to holders of Preferred Stock pursuant to such liquidation, dissolution or winding up of the Corporation or a Deemed Liquidation Event.

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 number of shares of Common Stock to be issued upon conversion of the Preferred Stock shall be rounded to the nearest whole share.

4.3 Mechanics of Conversion.

4.3.1 Notice of Conversion. In order for a holder of Preferred Stock to voluntarily convert shares of Preferred Stock into shares of Common Stock, such holder shall (a) provide written notice to the Corporation's transfer agent 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) that such holder elects to convert all or any number of such holder's shares of Preferred Stock and, if applicable, any event on which such conversion is contingent and (b), if such holder's shares are certificated, 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). Such notice shall state such holder's name or the names of the nominees in which such holder wishes the shares of Common Stock to be issued. If required by the Corporation, any certificates surrendered for conversion shall be endorsed or accompanied by a written instrument or instruments of transfer, in form 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 notice and, if applicable, certificates (or lost certificate affidavit and agreement) shall be the time of conversion (the "**Conversion Time**"), and the shares of Common Stock issuable upon conversion of the specified shares 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, and (ii) 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 the 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 the 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 the 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 this Amended and Restated Certificate of Incorporation. Before taking any action which would cause an adjustment reducing the Conversion Price 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 non-assessable 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 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 Preferred Stock accordingly.

4.3.4 No Further Adjustment. Upon any such conversion, no adjustment to the Conversion Price shall be made for any 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 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:

(a) “**Additional Shares of Common Stock**” shall mean all shares of Common Stock issued (or, pursuant to Section 4.4.3 below, deemed to be issued) by the Corporation after the 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) as to any series of Preferred Stock shares of Common Stock, Options or Convertible Securities issued as a dividend or distribution on such series of Preferred Stock;

- (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 Section 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, including the approval of all of the then-serving Preferred Directors (except that such Preferred Director approval shall not be required with respect to issuances under the Corporation's 2020 Equity Incentive Plan as in effect on the Original Issue Date);
- (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, including the approval of all of the then-serving Preferred Directors;
- (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, including the approval of all of the then-serving Preferred Directors;

- (vii) shares of Common Stock, Options or Convertible Securities issued as acquisition consideration pursuant to the acquisition of another corporation by the Corporation by merger, purchase of substantially all of the assets or other reorganization or to a joint venture agreement, provided that such issuances are approved by the Board of Directors of the Corporation, including the approval of all of the then-serving Preferred Directors; or
- (viii) 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, including the approval of all of the then-serving Preferred Directors.

(b) “**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.

(c) “**Option**” shall mean rights, options or warrants to subscribe for, purchase or otherwise acquire Common Stock or Convertible Securities.

4.4.2 No Adjustment of Conversion Price. No adjustment in the Conversion Price shall be made as the result of the issuance or deemed issuance of Additional Shares of Common Stock if the Corporation receives written notice from the Requisite Holders agreeing that no such adjustment shall be made as the result of the issuance or deemed issuance of such Additional Shares of Common 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 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 pursuant to the terms of Section 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 to an amount which exceeds the lower of (i) the Conversion Price 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 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 pursuant to the terms of Section 4.4.4 (either because the consideration per share (determined pursuant to Section 4.4.5) of the Additional Shares of Common Stock subject thereto was equal to or greater than the Conversion Price then in effect, or because such Option or Convertible Security was issued before the Original Issue Date), are revised after the 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 Section 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 pursuant to the terms of Section 4.4.4, the Conversion Price shall be readjusted to such 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 provided for in this Section 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 Section 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 that would result under the terms of this Section 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 or from time to time after the Original Issue Date issue Additional Shares of Common Stock (including Additional Shares of Common Stock deemed to be issued pursuant to Section 4.4.3), without consideration or for a consideration per share less than the Conversion Price in effect immediately prior to such issuance or deemed issuance, then the Conversion Price shall be reduced, concurrently with such issue, to a price (calculated to the nearest one-tenth 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) “CP₂” shall mean the Conversion Price in effect immediately after such issuance or deemed issuance of Additional Shares of Common Stock

(b) “CP₁” shall mean the Conversion Price in effect immediately prior to such issuance or deemed issuance of Additional Shares of Common Stock;

(c) “A” shall mean the number of shares of Common Stock outstanding immediately prior to such issuance or deemed issuance 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 issuance or deemed issuance 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 or deemed issued at a price per share equal to CP₁ (determined by dividing the aggregate consideration received by the Corporation in respect of such issue by CP₁); 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 Section 4.4, the consideration received by the Corporation for the issuance or deemed issuance 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 Section 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 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 pursuant to the terms of Section 4.4.4 then, upon the final such issuance, the 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 Original Issue Date effect a subdivision of the outstanding Common Stock, the Conversion Price in effect immediately before that subdivision 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 Original Issue Date combine the outstanding shares of Common Stock, the Conversion Price in effect immediately before the combination 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 Section shall become effective at the close of business on the date the subdivision or combination becomes effective.

4.6 Adjustment for Certain Dividends and Distributions. In the event the Corporation at any time or from time to time after the 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 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 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 shall be recomputed accordingly as of the close of business on such record date and thereafter the Conversion Price shall be adjusted pursuant to this Section as of the time of actual payment of such dividends or distributions; and (b) that no such adjustment shall be made if the holders 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 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 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 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 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 Section 2.3, if there shall occur any reorganization, recapitalization, reclassification, 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 Sections 4.4, 4.6 or 4.7), then, following any such reorganization, recapitalization, reclassification, consolidation or merger, each share 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 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) 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 pursuant to this Section 4, the Corporation at its expense shall, as promptly as reasonably practicable but in any event not later than ten (10) days thereafter, compute such adjustment or readjustment in accordance with the terms hereof and furnish to each holder of Preferred Stock a certificate setting forth such adjustment or readjustment (including the kind and amount of securities, cash or other property into which the 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 ten (10) days thereafter), furnish or cause to be furnished to such holder a certificate setting forth (i) the Conversion Price then in effect, 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 Preferred Stock.

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,

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, as 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 the Preferred Stock and the Common Stock. Such notice shall be sent at least ten (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 either (a) the closing of the sale of shares of Common Stock to the public at a price of at least 1.33 times the Original Issue Price (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Common Stock), 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 \$50,000,000 of gross proceeds to the Corporation and in connection with such offering the Common Stock is listed for trading on the Nasdaq Stock Market's National Market, the New York Stock Exchange or another exchange or marketplace approved by the Board of Directors of the Corporation, including the approval of at least one Preferred Director to the extent that at least one Preferred Director is then serving, or (b) the date and time, or the occurrence of an event, specified by vote or written consent of the Requisite Holders (the time of such closing or the date and time specified or the time of the event specified in such vote or written consent is referred to herein as the "**Mandatory Conversion Time**"), then (i) all outstanding shares of Preferred Stock shall automatically be converted into shares of Common Stock, at the then effective conversion rate as calculated pursuant to Section 4.1.1 and (ii) such shares may not be reissued by the Corporation.

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 in certificated form 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, any 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 Time (notwithstanding the failure of the holder or holders thereof to surrender any certificates at or prior to such time), except only the rights of the holders thereof, upon surrender of any certificate or certificates of such holders (or lost certificate affidavit and agreement) therefor, to receive the items provided for in the next sentence of this Section 5.2. As soon as practicable after the Mandatory Conversion Time and, if applicable, the surrender of any certificate or certificates (or lost certificate affidavit and agreement) for Preferred Stock, the Corporation shall (a) 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 and (b) pay 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.

6. Redemption. Other than as set forth in Section 2.3.2(b), the Preferred Stock is not redeemable.

7. Redeemed or Otherwise Acquired Shares. Any shares of Preferred Stock that are redeemed, converted 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, conversion or acquisition.

8. Waiver. Except as otherwise set forth herein, any of the rights, powers, preferences and other terms of the Preferred Stock set forth herein may be waived on behalf of all holders of Preferred Stock by the affirmative written consent or vote of the Requisite Holders.

9. 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 this Amended and Restated Certificate of Incorporation or the Bylaws of the Corporation, in furtherance and not in limitation of the powers conferred by statute, the Board of Directors of the Corporation 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 this Amended and Restated Certificate of Incorporation, the number of directors of the Corporation shall be determined in the manner set forth in the Bylaws of the Corporation. Each director shall be entitled to one vote on each matter presented to the Board of Directors of the Corporation; provided, however, that, so long as the holders of Preferred Stock are entitled to elect the Preferred Directors, the affirmative vote of all of the Preferred Directors then in office shall be required for the authorization by the Board of Directors of the Corporation of any of the matters set forth in Section 5.4 of the Investors' Rights Agreement, dated as of October 27, 2020, by and among the Corporation and the other parties thereto, as such agreement may be amended from time to time.

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 of the Corporation 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 (a) 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 or (b) increase the liability of any director of the Corporation with respect to any acts or omissions of such director, officer or agent occurring prior to, such amendment, repeal or modification.

ELEVENTH: The Corporation renounces, to the fullest extent permitted by law, 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, or (ii) any holder of Preferred Stock or any partner, member, director, stockholder, employee, affiliate or agent of any such holder, other than someone who is an employee of the Corporation or any of its subsidiaries (collectively, the persons referred to in clauses (i) and (ii) are “**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 while such Covered Person is performing services in such capacity. Any repeal or modification

of this Article Eleventh will only be prospective and will not affect the rights under this Article Eleventh in effect at the time of the occurrence of any actions or omissions to act giving rise to liability. Notwithstanding anything to the contrary contained elsewhere in this Amended and Restated Certificate of Incorporation, the affirmative vote of the Requisite Holders will be required to amend or repeal, or to adopt any provisions inconsistent with this Article Eleventh.

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 (10) 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.

THIRTEENTH: In connection with any repurchase of shares of Common Stock permitted under this Amended and Restated Certificate of Incorporation from employees, officers, directors or consultants of the Corporation in connection with a termination of employment or services pursuant to agreements or arrangements approved by the Board of Directors of the Corporation (in addition to any other consent required under this Amended and Restated Certificate of Incorporation), such repurchase may be made without regard to any "preferential dividends arrears amount" or "preferential rights amount" (as those terms are defined under applicable law). Accordingly, for purposes of making any calculation under applicable law in connection with such repurchase, the amount of any "preferential dividends arrears amount" or "preferential rights amount" (as those terms are defined therein) shall be deemed to be zero.

* * *

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 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.

[Signature Page Follows]

IN WITNESS WHEREOF, this Amended and Restated Certificate of Incorporation has been executed by a duly authorized officer of this corporation on October 27, 2020.

By: /s/ Kevin Lind
Name: Kevin Lind
Title: President, Chief Executive Officer and
Chief Financial Officer

**AMENDED AND RESTATED
BYLAWS
OF
LONGBOARD PHARMACEUTICALS, INC.
(A DELAWARE CORPORATION)**

ARTICLE I

OFFICES

Section 1. Registered Office. The registered office of the corporation in the State of Delaware is 251 Little Falls Drive, City of Wilmington, County of New Castle, 19808 or in such other location as the Board of Directors of the corporation (the “*Board of Directors*”) may from time to time determine or the business of the corporation may require.

Section 2. Other Offices. The corporation will 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. 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 will 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 (the “*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, will 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 this Section.

(b) At an annual meeting of the stockholders, only such business will be conducted as has 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 paragraph (a) of this Section, (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 and applicable law, (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 paragraph), 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. To be timely, a stockholder's notice will be delivered to the Secretary at the principal executive offices of the corporation not later than the close of business on the 90th day nor earlier than the close of business on the 120th 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 120th day prior to such annual meeting and not later than the close of business on the later of the 90th day prior to such annual meeting or the 10th day following the day on which public announcement of the date of such meeting is first made. In no event will 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 will 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 that 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**").

(c) Notwithstanding anything in the second sentence of paragraph (b) of this Section 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 will also be considered timely, but only with respect to nominees for any new positions created by such increase, if it is delivered to the Secretary at the principal executive offices of the corporation not later than the close of business on the 10th 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 (or elected or appointed pursuant to Article IV of these Bylaws) will be eligible to serve as directors and only such business will be conducted at a meeting of stockholders as has been brought before the meeting in accordance with the procedures set forth in this Section. Except as otherwise provided by law, the Chairman of the meeting will 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 will not be presented for stockholder action at the meeting and will be disregarded.

(e) Notwithstanding the foregoing provisions of this Section, 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 is 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, "public announcement" means 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 (the "**SEC**") 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, or (iii) the Board of Directors pursuant to a resolution adopted by directors representing a quorum of the directors then serving on the Board of Directors, and will be held at such place, on such date, and at such time as the Board of Directors will fix. At any time or times that the corporation is subject to Section 2115(b) of the California General Corporation Law (the "**CGCL**"), stockholders holding 5% or more of the outstanding shares will have the right to call a special meeting of stockholders as set forth in Section 18(b) of these Bylaws.

(b) If a special meeting is properly called by any person or persons other than the Board of Directors, the request will be in writing, specifying the general nature of the business proposed to be transacted, and will 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 in such notice. The Board of Directors will determine the time and place of such special meeting, which will 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 will 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) is to 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 will be given not less than 10 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 or her 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 will 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 as otherwise provided by statute, the Certificate of Incorporation or 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 will 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 will 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, 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 will be the act of the stockholders. Except as otherwise provided by statute, the Certificate of Incorporation or these Bylaws, directors will 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 as otherwise provided by statute, 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, will constitute a quorum entitled to take action with respect to that vote on that matter. Except as otherwise provided by statute, 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 will 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 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 that might have been transacted at the original meeting pursuant to the Certificate of Incorporation, these Bylaws or applicable law. 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 will 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, will be entitled to vote at any meeting of stockholders. Every person entitled to vote or execute consents will 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 will 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 where it is so provided, their acts with respect to voting (including giving consent pursuant to Section 13) will have the following effect: (a) if only one votes, his or her act binds all; (b) if more than one votes and the vote is not evenly split, 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) will be a majority or even-split in interest.

Section 12. List of Stockholders. The Secretary will prepare and make, at least 10 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 will 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 will 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 that 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, will 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.

(b) Every written consent or electronic transmission will bear the date of signature of each stockholder who signs the consent, and no written consent or electronic transmission will 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 will 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 will 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 to which the stockholders consented 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 must 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) An electronic mail, facsimile or other electronic transmission consenting to an action to be taken and transmitted by a stockholder or proxyholder, will be deemed to be written, signed and dated for the purposes of this Section, provided that any such electronic mail, facsimile or other electronic transmission sets forth or is delivered with information from which the corporation can determine (i) that the electronic mail, facsimile 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 electronic mail, facsimile or electronic transmission. The date on which such electronic mail, facsimile or electronic transmission is transmitted will be deemed to be the date on which such consent was signed. No consent given by electronic mail, facsimile or other electronic transmission will be deemed to have been delivered until such consent is reproduced in paper form and until such paper form 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 a corporation's registered office will be made by hand or by certified or registered mail, return receipt requested. Notwithstanding the foregoing limitations on delivery, consents given by electronic mail, facsimile 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. 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 is a complete reproduction of the entire original writing.

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 Chief Executive Officer, or, if the Chief Executive Officer 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, will act as chairman. The Secretary, or, in his or her absence, an Assistant Secretary directed to do so by the Chief Executive Officer, will act as secretary of the meeting.

(b) The Board of Directors is entitled to make such rules or regulations for the conduct of meetings of stockholders as it deems necessary, appropriate or convenient. Subject to such rules and regulations of the Board of Directors, if any, the chairman of the meeting has 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 permits, 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 that 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 will 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 will 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 will 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 have not 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 will be managed by or under the direction of the Board of Directors, except as 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 will be elected at each annual meeting of stockholders to serve until his or her successor is duly elected and qualified or until his or her death, resignation or removal. No decrease in the number of directors constituting the Board of Directors will shorten the term of any incumbent director.

(b) No person entitled to vote at an election for directors may cumulate votes to which such person is entitled, unless, at the time of such election, the corporation is subject to Section 2115(b) of the CGCL. During such time or times that the corporation is subject to Section 2115(b) of the CGCL, every stockholder entitled to vote at an election for directors may cumulate such stockholder's votes and give one candidate a number of votes equal to the number of directors to be elected multiplied by the number of votes to which such stockholder's shares are otherwise entitled, or distribute the stockholder's votes on the same principle among as many candidates as such stockholder thinks fit. No stockholder, however, will be entitled to so cumulate such stockholder's votes unless (i) the names of such candidate or candidates have been placed in nomination prior to the voting and (ii) the stockholder has given notice at the meeting, prior to the voting, of such stockholder's intention to cumulate such stockholder's votes. If any stockholder has given proper notice to cumulate votes, all stockholders may cumulate their votes for any candidates who have been properly placed in nomination. Under cumulative voting, the candidates receiving the highest number of votes, up to the number of directors to be elected, are elected.

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 will, unless the Board of Directors determines by resolution that any such vacancies or newly created directorships will 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 will, unless the Board of Directors determines by resolution that any such vacancies or newly created directorships must 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 will 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 has been elected and qualified. A vacancy in the Board of Directors will be deemed to exist under this Bylaw in the case of the death, removal or resignation of any director.

(b) At any time or times that the corporation is subject to Section 2115(b) of the CGCL, if, after the filling of any vacancy, the directors then in office who have been elected by stockholders constitute less than a majority of the directors then in office, then

(i) any holder or holders of an aggregate of 5% or more of the total number of shares at the time outstanding having the right to vote for those directors may call a special meeting of stockholders; or

(ii) the Superior Court of the proper county will, upon application of such stockholder or stockholders, summarily order a special meeting of the stockholders, to be held to elect the entire board, all in accordance with Section 305(c) of the CGCL, the term of office of any director will terminate upon that election of a successor.

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 will be deemed effective at the pleasure of the Board of Directors. When one or more directors resigns from the Board of Directors, effective at a future date, a majority of the directors then in office, including those who have so resigned, will have power to fill such vacancy or vacancies, the vote thereon to take effect when such resignation or resignations become effective, and each director so chosen will hold office for the unexpired portion of the term of the director whose place is vacated and until his or her successor has 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.

(b) During such time or times that the corporation is subject to Section 2115(b) of the CGCL, the Board of Directors or any individual director may be removed from office at any time without cause by the affirmative vote of the holders of a majority of the outstanding shares entitled to vote on such removal; *provided, however*, that unless the entire Board of Directors is removed, no individual director may be removed when the votes cast against such director's removal, or not consenting in writing to such removal, would be sufficient to elect that director if voted cumulatively at an election in which the same total number of votes were cast (or, if such action is taken by written consent, all shares entitled to vote were voted) and the entire number of directors authorized at the time of such director's most recent election were then being elected.

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 that 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, or by electronic mail or other electronic means. No further notice will be required for a regular meeting of the Board of Directors.

(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 of Directors, the Chief Executive Officer (if a director), the President (if a director) or any two of the directors.

(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 constitutes 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 will 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 will 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, will 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 signs a written waiver of notice or waives notice by electronic transmission. All such waivers will 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 will consist of a majority of the total number of directors then serving; *provided, however*, that such number will never be less than 1/3 of the total number of directors authorized except that when one director is authorized, then one director will constitute a quorum. 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. If the Certificate of Incorporation provides that one or more directors will have more or less than one vote per director on any matter, every reference in this Section to a majority or other proportion of the directors will refer to a majority or other proportion of the votes of the directors.

(b) At each meeting of the Board of Directors at which a quorum is present, all questions and business will 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 in writing or by electronic transmission, and such writing or writings or transmission or transmissions are filed with the minutes of proceedings of the Board of Directors or committee. Such filing will be in paper form if the minutes are maintained in paper form and will be in electronic form if the minutes are maintained in electronic form.

Section 24. Fees and Compensation. Directors will 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 is to 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, will 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 that may require it; but no such committee will 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 will consist of one or more members of the Board of Directors and will have such powers and perform such duties as may be prescribed by the resolution or resolutions creating such committees, but in no event will 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 paragraphs (a) or (b) of this Section 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 will terminate on the date of his or her 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 otherwise provide, regular meetings of the Executive Committee or any other committee appointed pursuant to this Section will 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. Special meetings of any such committee may be held at any place that 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 will 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 will be the act of such committee.

Section 26. Duties of Chairman of the Board of Directors. The Chairman of the Board of Directors, when present, will preside at all meetings of the stockholders and the Board of Directors. The Chairman of the Board of Directors will perform other duties commonly incident to the office and will also perform such other duties and have such other powers as the Board of Directors designates from time to time. If there is no Chief Executive Officer and no President, then the Chairman of the Board of Directors will also serve as the Chief Executive Officer of the corporation and will have the powers and duties prescribed in Section 29(b).

Section 27. 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 Chief Executive Officer (if a director), or if the Chief Executive Officer is not a director or is absent, the President (if a director), or if the President is not a director or 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, will preside over the meeting. The Secretary, or in his or her absence, any Assistant Secretary directed to do so by the Chief Executive Officer or President, will act as secretary of the meeting.

ARTICLE V

OFFICERS

Section 28. Officers Designated. The officers of the corporation will 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 will be elected or appointed from time to time by 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 deems necessary. The Board of Directors may assign such additional titles to one or more of the officers as it deems 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 will be fixed by or in the manner designated by the Board of Directors.

Section 29. Tenure and Duties of Officers.

(a) General. All officers will hold office at the pleasure of the Board of Directors and until their successors have been duly elected or appointed 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, or by the Chief Executive Officer or other officer if so authorized by the Board of Directors.

(b) Duties of Chief Executive Officer. The Chief Executive Officer will preside at all meetings of the stockholders and (if a director) at all meetings of the Board of Directors, unless the

Chairman of the Board of Directors has been appointed and is present. The Chief Executive Officer will be the chief executive officer of the corporation and will, subject to the control of the Board of Directors, have general supervision, direction and control of the business and officers of the corporation. The Chief Executive Officer will perform other duties commonly incident to the office and will also perform such other duties and have such other powers as the Board of Directors designates from time to time.

(c) Duties of President. In the absence or disability of the Chief Executive Officer or if the office of Chief Executive Officer is vacant, the President will preside at all meetings of the stockholders and (if a director) at all meetings of the Board of Directors, unless the Chairman of the Board of Directors has been appointed and is present. If the office of Chief Executive Officer is vacant, the President will be the chief executive officer of the corporation (including for purposes of any reference to Chief Executive Officer in these Bylaws) and will, 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 will perform other duties commonly incident to the office and will also perform such other duties and have such other powers as the Board of Directors designates 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 will perform other duties commonly incident to their office and will also perform such other duties and have such other powers as the Board of Directors or the President designates from time to time.

(e) Duties of Secretary. The Secretary will attend all meetings of the stockholders and of the Board of Directors and will record all acts and proceedings thereof in the minute book of the corporation. The Secretary will 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 will perform all other duties provided for in these Bylaws and other duties commonly incident to the office and will also perform such other duties and have such other powers as the Board of Directors will designate from time to time. The Chief Executive Officer 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 will perform other duties commonly incident to the office and will also perform such other duties and have such other powers as the Board of Directors or the Chief Executive Officer designates from time to time.

(f) Duties of Chief Financial Officer. The Chief Financial Officer will keep or cause to be kept the books of account of the corporation in a thorough and proper manner and will render statements of the financial affairs of the corporation in such form and as often as required by the Board of Directors or the Chief Executive Officer. The Chief Financial Officer, subject to the order of the Board of Directors, will have the custody of all funds and securities of the corporation. The Chief Financial Officer will perform other duties commonly incident to his or her office and will also perform such other duties and have such other powers as the Board of Directors or the Chief Executive Officer designate from time to time. The Chief Executive Officer 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 will perform other duties commonly incident to the office and will also perform such other duties and have such other powers as the Board of Directors or the Chief Executive Officer designates from time to time.

Section 30. 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.

Section 31. 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 Chief Executive Officer or to the President or to the Secretary. Any such resignation will 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 will become effective at such later time. Unless otherwise specified in such notice, the acceptance of any such resignation will not be necessary to make it effective. Any resignation will be without prejudice to the rights, if any, of the corporation under any contract with the resigning officer.

Section 32. 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 upon whom such power of removal may have been conferred by the Board of Directors.

ARTICLE VI

EXECUTION OF CORPORATE INSTRUMENTS AND VOTING OF SECURITIES OWNED BY THE CORPORATION

Section 33. 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, or to enter into contracts on behalf of the corporation, except as otherwise provided by law or these Bylaws, and such execution or signature will be binding upon the corporation. All checks and drafts drawn on banks or other depositaries of funds to the credit of the corporation or on special accounts of the corporation will be signed by such person or persons as the Board of Directors authorizes 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 will 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 34. 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, will be voted, and all proxies with respect thereto will 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 35. Form and Execution of Certificates. The shares of the corporation will be represented by certificates, or will be uncertificated. Certificates for the shares of stock, if any, of the corporation will be in such form as is consistent with the Certificate of Incorporation and applicable law. Every holder of shares of stock in the corporation represented by certificate will be entitled to have a certificate signed by or in the name of the corporation by any two authorized officers of the corporation, including but not limited to the Chief Executive Officer, the President, the Chief Financial Officer, any Vice President, the Treasurer or Assistant Treasurer or the Secretary or Assistant Secretary, certifying the number of shares owned by him or her 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 has been placed upon a certificate has 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 or she were such officer, transfer agent, or registrar at the date of issue.

Section 36. Lost Certificates. A new certificate or certificates will 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 requires 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 37. Restrictions on Transfer.

(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 will first give written notice to the corporation. The notice must 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 paragraph (a) of this Section will first be subject to the corporation's right of first refusal located in Section 38 of these Bylaws.

(c) At the option of the corporation, the stockholder will be obligated to pay to the corporation a reasonable transfer fee related to the costs and time of the corporation and its legal and other advisors related to any proposed Transfer.

(d) Any Transfer, or purported Transfer, of shares not made in strict compliance with this Section will be null and void, will not be recorded on the books of the corporation and will not be recognized by the corporation.

(e) The restriction on Transfer set forth in Section 37(a) will terminate upon the date securities of the corporation are first offered to the public pursuant to a registration statement filed with, and declared effective by, the SEC under the Securities Act of 1933, as amended (the "**1933 Act**").

(f) The certificates representing shares of stock of the corporation will 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.”

(g) Anything to the contrary contained herein notwithstanding, any Transfer by a stockholder of shares of Preferred Stock of the corporation (or any shares of Common Stock issued upon conversion thereof) is exempt from the consent and other requirements of this Section 37.

Section 38. Right of First Refusal. No stockholder will Transfer any of the shares of stock of the corporation, except by a Transfer that meets the requirements set forth in this Section 38, in addition to any other restrictions or requirements set forth under applicable law or these Bylaws:

(a) If the stockholder desires to Transfer any of his or her shares of stock, then the stockholder must first give written notice thereof to the corporation. The notice must 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.

(b) For 30 days following receipt of such notice, the corporation has the option to purchase up to all the shares specified in the notice at the price and upon the terms set forth in such notice; *provided, however*, that, with the consent of the stockholder, the corporation has the option to purchase a lesser portion of the shares specified in said notice at the price and upon the terms set forth therein. In the event of a gift, property settlement or other Transfer in which the proposed transferee is not paying the full price for the shares, and that is not otherwise exempted from the provisions of this Section, the price will be deemed to be the fair market value of the stock at such time as determined in good faith by the Board of Directors. In the event the corporation elects to purchase all of the shares or, with consent of the stockholder, a lesser portion of the shares, it will give written notice to the transferring stockholder of its election and settlement for said shares will be made as provided below in paragraph (d) of this Section.

(c) The corporation may assign its rights hereunder.

(d) In the event the corporation and/or its assignee(s) elect to acquire any of the shares of the transferring stockholder as specified in said transferring stockholder's notice, the Secretary of the corporation will so notify the transferring stockholder and settlement thereof will be made in cash within 30 days after the Secretary of the corporation receives said transferring stockholder's notice; provided that if the terms of payment set forth in said transferring stockholder's notice were other than cash against delivery, the corporation and/or its assignee(s) will pay for said shares on the same terms and conditions set forth in said transferring stockholder's notice.

(e) In the event the corporation and/or its assignees(s) do not elect to acquire all of the shares specified in the transferring stockholder's notice, said transferring stockholder may, subject to the corporation's approval and all other restrictions on Transfer located in Section 37 of these Bylaws, within the 60-day period following the expiration or waiver of the option rights granted to the corporation and/or its assignees(s) herein, Transfer the shares specified in said transferring stockholder's notice that were not acquired by the corporation and/or its assignees(s) as specified in said transferring stockholder's notice. All shares so sold by said transferring stockholder will continue to be subject to the provisions of this Bylaw in the same manner as before said Transfer.

(f) Anything to the contrary contained herein notwithstanding, the following transactions are exempt from the right of first refusal in paragraph (a) of this Section:

(1) A stockholder's Transfer of any or all shares held either during such stockholder's lifetime or on death by will or intestacy to such stockholder's immediate family or to any custodian or trustee for the account of such stockholder or such stockholder's immediate family or to any limited partnership or limited liability company of which the stockholder, members of such stockholder's immediate family or any trust for the account of such stockholder or such stockholder's immediate family will be the general or limited partner(s) of such partnership or the controlling member(s) of such limited liability company. "Immediate family" as used herein means spouse, lineal descendant, father, mother, brother, or sister of the stockholder making such Transfer;

(2) A stockholder's bona fide pledge or mortgage of any shares with a commercial lending institution, provided that any subsequent Transfer of said shares by said institution will be conducted in the manner set forth in this Bylaw;

(3) A stockholder's Transfer of any or all of such stockholder's shares to the corporation or to any other stockholder of the corporation;

(4) A stockholder's Transfer of any or all of such stockholder's shares to a person who, at the time of such Transfer, is an officer or director of the corporation;

(5) A corporate stockholder's Transfer of any or all of its shares pursuant to and in accordance with the terms of any merger, consolidation, reclassification of shares or capital reorganization of the corporate stockholder, or pursuant to a sale of all or substantially all of the stock or assets of a corporate stockholder;

(6) A stockholder's Transfer of shares of Preferred Stock of the corporation (or any shares of Common Stock issued upon conversion thereof);

(7) A corporate stockholder's Transfer of any or all of its shares to any or all of its stockholders; or

(8) A Transfer by a stockholder that is a limited or general partnership to any or all of its partners or former partners in accordance with partnership interests.

In any such case, the transferee, assignee, or other recipient will receive and hold such stock subject to the provisions of this Section and any other restrictions set forth in these Bylaws, and there will be no further Transfer of such stock except in accord with this Section and the other provisions of these Bylaws.

(g) The provisions of this Bylaw may be waived with respect to any Transfer either by the corporation, upon duly authorized action of its Board of Directors, or by the stockholders, upon the express written consent of the owners of a majority of the voting power of the corporation (excluding the votes represented by those shares to be transferred by the transferring stockholder). This Bylaw may be amended or repealed either by a duly authorized action of the Board of Directors or by the stockholders, upon the express written consent of the owners of a majority of the voting power of the corporation.

(h) Any Transfer, or purported Transfer, of securities of the corporation will be null and void unless the terms, conditions, and provisions of this Bylaw are strictly observed and followed.

(i) The foregoing right of first refusal will terminate upon the date securities of the corporation are first offered to the public pursuant to a registration statement filed with, and declared effective by, the SEC under the Securities Act of 1933, as amended.

(j) The certificates representing shares of Common Stock of the corporation that are subject to the right of first refusal in paragraph (a) of this Section will bear on their face the following legend so long as the foregoing right of first refusal remains in effect:

“THE SHARES REPRESENTED BY THIS CERTIFICATE ARE SUBJECT TO A RIGHT OF FIRST REFUSAL OPTION IN FAVOR OF THE CORPORATION AND/OR ITS ASSIGNEE(S), AS PROVIDED IN THE BYLAWS OF THE CORPORATION.”

(k) To the extent this Section conflicts with any written agreements between the corporation and the stockholder attempting to Transfer shares, such agreement will control.

Section 39. 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 will not precede the date upon which the resolution fixing the record date is adopted by the Board of Directors, and which record date will, subject to applicable law, not be more than 60 nor less than 10 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 will be at the close of business on the day immediately preceding the day on which notice is given, or if notice is waived, at the close of business on the day immediately 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 will 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 will not precede the date upon which the resolution fixing the record date is adopted by the Board of Directors, and which date will not be more than 10 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 will, by written notice to the Secretary, request the Board of Directors to fix a record date. The Board of Directors will promptly, but in all events within 10 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 10 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, will 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 will 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 will 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 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 will not precede the date upon which the resolution fixing the record date is adopted, and which record date will 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 will be at the close of business on the day on which the Board of Directors adopts the resolution relating thereto.

Section 40. Registered Stockholders. The corporation is 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 is not 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 has express or other notice thereof, except as otherwise provided by the laws of Delaware.

ARTICLE VIII

OTHER SECURITIES OF THE CORPORATION

Section 41. Execution of Other Securities. All bonds, debentures and other corporate securities of the corporation, other than stock certificates (covered in Section 35 of these Bylaws), may be signed by the Chairman of the Board of Directors, the Chief Executive Officer, 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 is 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 is 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, will 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 has signed or attested any bond, debenture or other corporate security, or whose facsimile signature appears thereon or on any such interest coupon, has ceased to be such officer before the bond, debenture or other corporate security so signed or attested has 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 has been used thereon had not ceased to be such officer of the corporation.

ARTICLE IX

DIVIDENDS

Section 42. 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 43. 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

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 thinks 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 44. Fiscal Year. The fiscal year of the corporation will be fixed by resolution of the Board of Directors.

ARTICLE XI

INDEMNIFICATION

Section 45. Indemnification of Directors, Executive Officers, Other Officers, Employees and Other Agents.

(a) **Directors and Executive Officers.** The corporation will indemnify its directors and executive officers (for the purposes of this Article, “executive officers” has the meaning defined in Rule 3b-7 promulgated under the 1934 Act) 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 executive officers; and, *provided, further*, that the corporation will not be required to indemnify any director or executive 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 DGCL or any other applicable law or (iv) such indemnification is required to be made under paragraph (d) of this Section.

(b) **Other Officers, Employees and Other Agents.** The corporation will have power to indemnify its other officers, employees and other agents as set forth in the DGCL or any other applicable law. The Board of Directors will have the power to delegate the determination of whether indemnification will be given to any such person except executive officers to such officers or other persons as the Board of Directors determines.

(c) **Expenses.** The corporation will 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 such person is or was a director or executive officer of the corporation, or is or was serving at the request of the corporation as a director or executive 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 executive 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) will 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 is ultimately determined by final judicial decision from which there is no further right to appeal that such indemnitee is not entitled to be indemnified for such expenses under this Section or otherwise.

Notwithstanding the foregoing, unless otherwise determined pursuant to paragraph (e) of this Section, no advance will be made by the corporation to an executive officer of the corporation (except by reason of the fact that such executive officer is or was a director of the corporation, in which event this paragraph will 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 executive officers under this Section will 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 executive officer. Any right to indemnification or advances granted by this Section to a director or executive officer will 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, will be entitled to be paid also the expense of prosecuting the claim. In connection with any claim for indemnification, the corporation will 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 executive officer of the corporation (except in any action, suit or proceeding, whether civil, criminal, administrative or investigative, by reason of the fact that such executive officer is or was a director of the corporation) for advances, the corporation will 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 or her 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, will 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 Section are not exclusive of any other right that 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 or her 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.

(f) Survival of Rights. The rights conferred on any person by this Section will continue as to a person who has ceased to be a director or executive officer and will 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 Section.

(h) **Amendments.** Any repeal or modification of this Section is only prospective and does 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 Section or any portion hereof is invalidated on any ground by any court of competent jurisdiction, then the corporation will nevertheless indemnify each director and executive officer to the full extent not prohibited by any applicable portion of this Bylaw that has not been invalidated, or by any other applicable law. If this Section is invalid due to the application of the indemnification provisions of another jurisdiction, then the corporation will indemnify each director and executive officer to the full extent under applicable law.

(j) **Certain Definitions.** For the purposes of this Section, the following definitions apply:

(1) The term “proceeding” is to be broadly construed and includes, 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” is to be broadly construed and includes, 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” includes, in addition to the resulting corporation, any constituent corporation (including any constituent of a constituent) absorbed in a consolidation or merger that, 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, stands in the same position under the provisions of this Section 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 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.

(5) References to “other enterprises” include employee benefit plans; references to “fines” 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” include any service as a director, officer, employee or agent of the corporation that 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 is deemed to have acted in a manner “not opposed to the best interests of the corporation” as referred to in this Section.

ARTICLE XII

NOTICES

Section 46. Notices.

(a) Notice to Stockholders. Written notice to stockholders of stockholder meetings will be given as provided in Section 7 of these Bylaws. 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 paragraph (a) of this Section, or as provided for in Section 21 of these Bylaws. If such notice is not delivered personally, it will be sent to such address as such director has 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, will in the absence of fraud, be prima facie evidence of the facts therein contained.

(d) Methods of Notice. It is not 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 is not required and there is 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 that is taken or held without notice to any such person with whom communication is unlawful has 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 will 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 will 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 is 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 is revocable by the stockholder by written notice to the corporation.

ARTICLE XIII

AMENDMENTS

Section 47. Amendments. The Board of Directors is expressly empowered to adopt, amend or repeal Bylaws of the corporation. The stockholders 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 requires the affirmative vote of the holders of 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 48. 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 approves, including, without limitation, a pledge of shares of stock of the corporation. Nothing in these Bylaws is deemed to deny, limit or restrict the powers of guaranty or warranty of the corporation at common law or under any statute.

ARTICLE XV

MISCELLANEOUS

Section 49. Annual Report.

(a) Subject to the provisions of paragraph (b) of this Section, the Board of Directors will cause an annual report to be sent to each stockholder of the corporation not later than 120 days after the close of the corporation's fiscal year. Such report will include a balance sheet as of the end of such fiscal year and an income statement and statement of changes in financial position for such fiscal year, accompanied by any report thereon of independent accountants or, if there is no such report, the certificate of an authorized officer of the corporation that such statements were prepared without audit from the books and records of the corporation. When there are more than 100 stockholders of record of the corporation's shares, as determined by Section 605 of the CGCL, additional information as required by Section 1501(b) of the CGCL will also be contained in such report, provided that if the corporation has a class of securities registered under Section 12 of the 1934 Act, the 1934 Act will take precedence. Such report will be sent to stockholders at least 15 days prior to the next annual meeting of stockholders after the end of the fiscal year to which it relates.

(b) If and so long as there are fewer than 100 holders of record of the corporation's shares, the requirement of sending of an annual report to the stockholders of the corporation is hereby expressly waived.

Section 50. Forum. Unless the corporation consents in writing to the selection of an alternative forum, the Court of Chancery in the State of Delaware (or, if and only if the Court of Chancery

of the State of Delaware lacks subject matter jurisdiction, any state court located within the State of Delaware or, if and only if all such state courts lack subject matter jurisdiction, the federal district court for the District of Delaware) will be the sole and exclusive forum for the following types of actions or proceedings under Delaware statutory or common law (i) any derivative action or proceeding brought on behalf of the corporation; (ii) any action or proceeding asserting a claim of breach of a fiduciary duty owed by any current or former director, officer or other employee of the corporation, to the corporation or the corporation's stockholders; (iii) any action or proceeding asserting a claim against the corporation or any current or former director, officer or other employee of the corporation, arising out of or pursuant to any provision of the DGCL, the Certificate of Incorporation or these Bylaws (as each may be amended from time to time); (iv) any action or proceeding to interpret, apply, enforce or determine the validity of the Certificate of Incorporation or these Bylaws (including any right, obligation, or remedy thereunder); (v) any action or proceeding as to which the DGCL confers jurisdiction to the Court of Chancery of the State of Delaware; and (vi) any action asserting a claim against the corporation or any director, officer or other employee of the corporation, governed by the internal affairs doctrine, in all cases to the fullest extent permitted by law and subject to the court's having personal jurisdiction over the indispensable parties named as defendants. This Section 50 will not apply to suits brought to enforce a duty or liability created by the 1934 Act, or any other claim for which the federal courts have exclusive jurisdiction.

INVESTORS' RIGHTS AGREEMENT

THIS INVESTORS' RIGHTS AGREEMENT (this "**Agreement**"), is made as of October 27, 2020, by and among Longboard Pharmaceuticals, 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**" and, solely for purposes of Sections 1.5, 1.19, 4, 5.5 and 6, Arena Pharmaceuticals, Inc. ("**ARNA**").

RECITALS

WHEREAS, the Company and the Investors are parties to that certain Series A Preferred Stock Purchase Agreement of even date herewith (the "**Purchase Agreement**"); and

WHEREAS, in order to induce the Company to enter into the Purchase Agreement and to induce the Investors to invest funds in the Company pursuant to the Purchase Agreement, the Investors and the Company hereby agree that this Agreement shall govern the rights of the Investors to cause the Company to register shares of Common Stock issuable to the Investors, to receive certain information from the Company, and to participate in future equity offerings by the Company, and shall govern certain other matters as set forth in this Agreement;

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, director or trustee of such Person, or any venture capital fund or other investment fund now or hereafter existing that is controlled by one or more general partners, managing members or investment adviser of, or shares the same management company or investment adviser with, such Person.

1.2 "**Board of Directors**" means the board of directors of the Company.

1.3 "**Certificate of Incorporation**" means the Company's Amended and Restated Certificate of Incorporation, as amended and/or restated from time to time.

1.4 "**Common Stock**" means shares of the Company's common stock, par value \$0.0001 per share.

1.5 "**Competitor**" means a Person engaged, directly or indirectly (including through any partnership, limited liability company, corporation, joint venture or similar arrangement (whether now existing or formed hereafter)), in the development or commercialization of pharmaceutical products for the treatment of neurological conditions with microglial neuroinflammation, but shall not include (i) any financial investment firm or collective investment vehicle that, together with its Affiliates, holds less than twenty percent (20%) of the outstanding equity of any Competitor and does not, nor do any of its Affiliates, have a right to designate any members of the board of directors of any Competitor, (ii) ARNA or (iii) Farallon.

1.6 “**Damages**” means any loss, damage, claim 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, claim 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, 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.

1.7 “**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.

1.8 “**Exchange Act**” means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

1.9 “**Excluded Registration**” means (i) a registration relating to the sale or grant of securities to employees of the Company or a subsidiary pursuant to a stock option, stock purchase, equity incentive or similar plan; (ii) a registration relating to an 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.

1.10 “**Farallon**” means, collectively, Zone II Healthcare Holdings, LLC, Farallon Capital Management, L.L.C. and their respective Affiliates.

1.11 “**FOIA Party**” means a Person that, in the reasonable determination of the Board of Directors, may be subject to, and thereby required to disclose non-public information furnished by or relating to the Company under, the Freedom of Information Act, 5 U.S.C. 552 (“**FOIA**”), any state public records access law, any state or other jurisdiction’s laws similar in intent or effect to FOIA, or any other similar statutory or regulatory requirement.

1.12 “**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.

1.13 “**Form S-3**” means such form under the Securities Act as in effect on the date hereof or any registration form under the Securities Act subsequently adopted by the SEC that permits forward incorporation of substantial information by reference to other documents filed by the Company with the SEC.

1.14 “**GAAP**” means generally accepted accounting principles in the United States as in effect from time to time.

- 1.15 “**Holder**” means any holder of Registrable Securities who is a party to this Agreement.
- 1.16 “**Immediate Family Member**” means a child, stepchild, grandchild, parent, stepparent, grandparent, spouse, life partner or similar statutorily-recognized domestic partner, 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.
- 1.17 “**Initiating Holders**” means, collectively, Holders who properly initiate a registration request under this Agreement.
- 1.18 “**IPO**” means the Company’s first underwritten public offering of its Common Stock under the Securities Act.
- 1.19 “**Major Investor**” means any Investor that, individually or together with such Investor’s Affiliates, holds at least \$3.0 million of Registrable Securities (based on the aggregate original purchase price of such Registrable Securities); provided that ARNA shall also be deemed a Major Investor solely for the purposes of Section 4 and Section 6.6.
- 1.20 “**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.
- 1.21 “**Person**” means any individual, corporation, partnership, trust, limited liability company, association or other entity.
- 1.22 “**Preferred Director**” means any director of the Company that the holders of record of Preferred Stock are entitled to elect, exclusively and as a separate class, pursuant to the Certificate of Incorporation.
- 1.23 “**Preferred Stock**” means the Company’s Series A Preferred Stock.
- 1.24 “**Registrable Securities**” means (i) the Common Stock issuable or issued upon conversion of the Preferred Stock; (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; and (iii) 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.
- 1.25 “**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.

- 1.26 “**Restricted Securities**” means the securities of the Company required to be notated with the legend set forth in Section 2.12(b) hereof.
- 1.27 “**SEC**” means the Securities and Exchange Commission.
- 1.28 “**SEC Rule 144**” means Rule 144 promulgated by the SEC under the Securities Act.
- 1.29 “**SEC Rule 145**” means Rule 145 promulgated by the SEC under the Securities Act.
- 1.30 “**Securities Act**” means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.
- 1.31 “**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.
- 1.32 “**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) four 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 forty (40%) of the Registrable Securities then outstanding that the Company file a Form S-1 registration statement with respect to at least forty percent (40%) of the Registrable Securities then outstanding, then the Company shall: (x) 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 (y) 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 Sections 2.1(c) and 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 of at least twenty percent (20%) of the Registrable Securities then outstanding 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 \$4.0 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 Sections 2.1(c) and 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 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 ninety (90) 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 ninety (90) day period other than an Excluded Registration.

(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 ninety (90) 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); provided, that if such withdrawal is during a period the Company has deferred taking action pursuant to Section 2.1(c), then the Initiating Holders may withdraw their request for registration and such registration will not 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, a registration relating to a demand pursuant to Section 2.1, or the IPO), 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; provided, however, that no Holder (or any of their assignees) shall be required to make any representations, warranties or indemnities except as they relate to such Holder's ownership of shares and authority to enter into the underwriting agreement and to such Holder's intended method of distribution, and the liability of such Holder shall be several and not joint, and limited to an amount equal to the net proceeds from the offering received by such Holder, except in the case of fraud or willful misconduct by such Holder. Notwithstanding any other provision of this Section 2.3, if the managing 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. 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 one hundred (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 one hundred (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, or (ii) the number of Registrable Securities included in the offering be reduced below twenty-five percent (25%) 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. 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, 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.

(c) For purposes of Section 2.1, a registration shall not be counted as "effected" if, as a result of an exercise of the underwriter's cutback provisions in Section 2.3(a), fewer than fifty percent (50%) of the total number of Registrable Securities that Holders have requested to be included in such registration statement are actually included.

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 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;

(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;

(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 managing 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.

In addition, the Company shall ensure that, at all times after any registration statement covering a public offering of securities of the Company under the Securities Act shall have become effective, its insider trading policy shall provide that the Company's directors may implement a trading program under Rule 10b5-1 of the Exchange Act.

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, not to exceed \$25,000 per registration, of one counsel for the selling Holders selected by Holders of at least a majority of the Registrable Securities to be registered ("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 Sections 2.1(a) or 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 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 Sections 2.1(a) or 2.1(b). All Selling Expenses relating to Registrable Securities registered pursuant to this Section 2 (other than fees and disbursements of counsel to any Holder, other than the Selling Holder Counsel, which shall be borne solely by the Holder engaging such counsel) 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, accountants and investment advisers 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 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 Section 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. The failure

to give notice to the indemnifying party within a reasonable time of the commencement of any such action shall relieve such indemnifying party of any liability to the indemnified party under this Section 2.8, only to the extent that such failure materially prejudices the indemnifying party's ability to defend such action. The failure to give notice to the indemnifying party will not relieve it of any liability that it may have to any indemnified party otherwise than under this Section 2.8.

(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 of this Section 2.8, the provisions in the underwriting agreement shall control; provided, however, that any matter expressly provided for or addressed by the foregoing provisions that is not expressly provided for or addressed by the underwriting agreement shall be controlled by the foregoing provisions.

(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 or any provision(s) 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); and (ii) 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 would allow such holder or prospective holder 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; provided that this limitation shall not apply to Registrable Securities acquired by any additional Investor that becomes a party to this Agreement in accordance with Section 6.9.

2.11 "Market Stand-off" Agreement. 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 IPO and ending on the date specified by the Company and the managing underwriter (such period not to exceed one hundred eighty (180) days), (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, in each case held immediately before the effective date of the registration statement for the IPO; 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. The foregoing provisions of this Section 2.11 shall apply only to the IPO, shall not apply to the sale of any shares to an underwriter pursuant to an underwriting agreement and shall only be applicable to the Holders if all officers, directors and holders of more than one percent (1%) of the outstanding Common Stock (after giving effect to the conversion into Common Stock of all outstanding Preferred Stock) enter into similar agreements. The underwriters in connection with such registration are intended third-party beneficiaries of this Section 2.11 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 this Section 2.11 or that are necessary to give further effect thereto. Any discretionary waiver or termination of the restrictions of any or all of such agreements executed by Company stockholders, by the Company or the underwriters shall apply pro rata to all Company stockholders that are subject to such agreements, based on the number of shares subject to such agreements. Notwithstanding the foregoing, the Company and the underwriters may, in their sole discretion, waive or terminate these restrictions with respect to up to an aggregate of one percent (1%) of all of the shares of Common Stock subject to these restrictions; provided that these restrictions may not be waived or terminated with respect to any shares of Common Stock held by a Major Investor unless such waiver or termination applies pro rata to all Major Investors, based on the number of shares of Common Stock held by them.

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. Notwithstanding the foregoing, the Company shall not require any transferee of shares pursuant to an effective registration statement or, following the IPO, SEC Rule 144, in each case, to be bound by the terms of this Agreement.

(b) Each certificate, instrument, or book entry 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 notated with a legend substantially in the following form:

THE SECURITIES REPRESENTED HEREBY HAVE BEEN ACQUIRED FOR INVESTMENT AND HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933. SUCH SHARES MAY NOT BE SOLD, PLEDGED, OR TRANSFERRED IN THE ABSENCE OF SUCH REGISTRATION OR A VALID EXEMPTION FROM THE REGISTRATION AND PROSPECTUS DELIVERY REQUIREMENTS OF SAID ACT.

THE SECURITIES REPRESENTED HEREBY MAY BE TRANSFERRED ONLY IN ACCORDANCE WITH THE TERMS OF AN AGREEMENT BETWEEN THE COMPANY AND THE 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 such Restricted Securities, by acceptance of ownership 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 or following the IPO, the transfer is made pursuant to SEC Rule 144, the Holder thereof shall give notice to the Company of such Holder's intention to effect such sale, pledge, or transfer, provided that no such notice shall be required in connection if the intended sale, pledge or transfer complies with SEC Rule 144. 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 notice, 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 or nominal consideration; provided that with respect to transfers under the foregoing clause (y), each transferee agrees in writing to be subject to the terms of this Section 2.12. Each certificate, instrument, or book entry representing the Restricted Securities transferred as above provided shall be notated with, except if such transfer is made pursuant to SEC Rule 144 or pursuant to an effective registration statement, the appropriate restrictive legend set forth in Section 2.12(b), except that such certificate instrument, or book entry shall not be notated with 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 Sections 2.1 or 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 Certificate of Incorporation, in which the consideration received by the Investors in such Deemed Liquidation Event is in the form of cash and/or publicly traded securities, or if the Investors receive registration rights from the acquiring company or other successor to the Company reasonably comparable to those set forth in this Section 2;

(b) such time after consummation of the IPO as SEC Rule 144 is available for the sale of all of such Holder's shares without limitation in a single transaction without registration; and

(c) the third anniversary of the IPO (or such later date that is one hundred eighty (180) days following the expiration of all deferrals of the Company's obligations pursuant to Section 2 that remain in effect as of the third anniversary of the consummation of the IPO).

3. Information and Observer Rights.

3.1 Delivery of Financial Statements. The Company shall deliver to each Major Investor, provided that the Board of Directors has not reasonably determined that such Major Investor is a Competitor:

(a) as soon as practicable, but in any event within one hundred twenty (120) 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(e)) 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 to be in reasonable detail, prepared in accordance with GAAP, each of which financial statements may be unaudited, unless the Company has received audited versions thereof;

(b) as soon as practicable, but in any event within forty five (45) days after the end of each quarter of each fiscal year of the Company, unaudited statements of income and 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 quarter 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 Major 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 after the end of each month (or within forty-five (45) days after the end of each December), an unaudited income statement and statement of cash flows for such month, and an unaudited balance sheet and

statement of stockholders' equity as of the end of such month, 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); and

(e) as soon as practicable, but in any event at least thirty (30) days before the end of each fiscal year, a budget and business plan for the next fiscal year, prepared on a monthly 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 (such budget and business plan that is approved by the Board of Directors is collectively referred to herein as the "**Budget**").

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 Inspection. The Company shall permit each Major Investor (provided that the Board of Directors has not reasonably determined that such Major Investor is a Competitor), at such Major Investor's expense, to visit and inspect the Company's properties; examine its books of account and records; 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 Major Investor; provided, however, that the Company shall not be obligated pursuant to this Section 3.2 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.

3.3 Termination of Information Rights. The covenants set forth in Section 3.1 and Section 3.2 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, or (iii) upon the closing of a Deemed Liquidation Event, whichever event occurs first; provided, that, with respect to clause (iii), the covenants set forth in Section 3.1 shall only terminate if the consideration received by the Investors in such Deemed Liquidation Event is in the form of cash and/or publicly traded securities or if the Investors receive financial information from the acquiring company or other successor to the Company comparable to those set forth in Section 3.1.

3.4 Confidentiality. Each Investor agrees that such Investor will keep confidential and will not disclose, divulge, or use for any purpose (other than to monitor or make decisions with

respect to 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 such Investor without use of the Company's confidential information, or (c) is or has been made known or disclosed to such 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 reasonably 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 existing or prospective Affiliate, partner, member, stockholder, or wholly owned subsidiary of such Investor, provided that such Investor informs such Person that such information is confidential and directs such Person to maintain the confidentiality of such information; (iv) as may be required by law, regulation, rule, court order or subpoena, provided that, if such requirement is specifically targeted at information regarding the Company, such Investor promptly notifies the Company of such disclosure and takes reasonable steps to minimize the extent of any such required disclosure; or (v) as requested by, or in such Investor's or its Affiliates' ordinary course reporting to, any governmental authority, regulatory body or agency, stock exchange or self-regulatory organization.

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 Major Investor. A Major Investor shall be entitled to apportion the right of first offer hereby granted to it in such proportions as it deems appropriate, among (i) itself, (ii) its Affiliates and (iii) its beneficial interest holders, such as limited partners, members or any other Person having "beneficial ownership," as such term is defined in Rule 13d-3 promulgated under the Exchange Act, of such Major Investor ("**Investor Beneficial Owners**"); provided that each such Affiliate or Investor Beneficial Owner (x) is not a Competitor or FOIA Party, unless such party's purchase of New Securities is otherwise consented to by the Board of Directors, (y) agrees to enter into this Agreement and each of the Voting Agreement of even date herewith among the Company, the Investors and the other parties named therein (the "**Voting Agreement**") and the Right of First Refusal and Co-Sale Agreement of even date herewith among the Company, the Investors and the other parties named therein, as an "**Investor**" under each such agreement (provided that any Competitor or FOIA Party shall not be entitled to any rights as a Major Investor under Sections 3.1, 3.2 and 4.1 hereof), and (z) agrees to purchase at least such number of New Securities as are allocable hereunder to the Major Investor holding the fewest number of shares of Preferred Stock and any other Derivative Securities.

(a) The Company shall give notice (the "**Offer Notice**") to each Major 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 ten (10) business days after the Offer Notice is given, each Major 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 then held by such Major Investor (including all shares of Common Stock then issuable (directly or indirectly) upon conversion and/or exercise, as applicable, of the Preferred Stock and any other Derivative Securities then held by such Major 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 any other Derivative Securities then outstanding). At the expiration of such ten (10) business day period, the Company shall promptly notify each Major Investor that elects to purchase or acquire all the shares available to it (each, a “**Fully Exercising Investor**”) of any other Major Investor’s failure to do likewise. During the five (5) business 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 Major Investors were entitled to subscribe but that were not subscribed for by the Major Investors which is equal to the 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 ninety (90) 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 Major 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 Certificate of Incorporation); and (ii) shares of Common Stock issued in the IPO.

(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 Major 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 Major 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 Major Investor, maintain such Major Investor’s percentage-ownership position, calculated as set forth in Section 4.1(b) before giving effect to the issuance of such New Securities.

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, or (ii) upon the closing of a Deemed Liquidation Event, whichever event occurs first.

5. Additional Covenants.

5.1 Insurance. The Company shall obtain, within ninety (90) 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 (including all of the then-serving Preferred Directors) determines that such insurance should be discontinued.

5.2 Employee Agreements. The Company will cause 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, proprietary rights assignment and non-solicitation 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 consent of the Board of Directors, including at least one Preferred Director to the extent that at least one Preferred Director is then serving on the Board of Directors (the “**Requisite Preferred Director Vote**”).

5.3 Employee Stock. Unless otherwise approved by the Board of Directors, including the Requisite Preferred Director Vote, all employees, consultants and other service providers 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 year period, with the first twenty-five percent (25%) of such shares vesting following twelve 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. Without the prior approval by the Board of Directors, including the Requisite Preferred Director Vote, the Company shall not amend, modify, terminate, waive or otherwise alter, in whole or in part, any stock purchase, stock restriction or option agreement with any existing employee or service provider if such amendment would cause it to be inconsistent with this Section 5.3. In addition, unless otherwise approved by the Board of Directors, including the Requisite Preferred Director Vote, the Company (x) shall not offer or approve any acceleration of vesting, and (y) shall retain (and not waive) 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.

5.4 Matters Requiring Preferred Director Approval. During such time or times as the holders of Preferred Stock are entitled to elect a Preferred Director and such seat is filled, 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 all of the Preferred Directors then in office:

(a) create or authorize the creation of any debt security or incur or guarantee any indebtedness for borrowed money if the Company's and its subsidiaries' aggregate indebtedness outstanding, together with the aggregate amount of outstanding indebtedness guaranteed by the Company and its subsidiaries, at any time would exceed \$5.0 million (excluding equipment leases or bank lines of credit or trade payables incurred in the ordinary course);

(b) amend the Company's 2020 Equity Incentive Plan, including any increase in the number of shares of the Company's Common Stock that are reserved for issuance thereunder, or adopt any other incentive plan or similar arrangement;

(c) hire, terminate, or change the compensation of any executive officer of the Company or any of its subsidiaries, including approving any option grants or stock awards to any executive officer;

(d) sell, assign, license, pledge, or encumber material technology or intellectual property, other than licenses granted in the ordinary course of business; or

(e) enter into any corporate strategic relationship involving the payment, contribution, or assignment by the Company or to the Company of money or assets greater than \$100,000.

5.5 Board Matters. 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. Each committee of the Board of Directors, to the extent established, shall be comprised of at least two members, with at least one of such members being a Preferred Director (to the extent that at least one Preferred Director is then serving on the Board) and one of such members being an ARNA Director (as defined in the Voting Agreement) (to the extent that at least one ARNA Director is then serving on the Board).

5.6 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, the Certificate of Incorporation, or elsewhere, as the case may be.

5.7 Indemnification Matters. The Company hereby acknowledges that one or more of the directors nominated to serve on the Board of Directors by one or more of the Investors (the "**Investor Directors**") 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 "**Investor Indemnitors**"). The Company hereby agrees (a) that it is the indemnitor of first resort (*i.e.*, its obligations to any such Investor Director are primary and any obligation of the Investor Indemnitors to advance expenses or to provide indemnification for the same expenses or liabilities incurred by such Investor Director are secondary), (b) that it shall be required to advance the full amount of expenses incurred by such Investor 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 Investor Director to the extent legally permitted and as required by the Certificate of Incorporation or Bylaws of the Company (or any agreement between the Company and such Investor Director), without regard to any rights such Investor Director may have against the Investor Indemnitors, and, (c) that it irrevocably waives, relinquishes and releases the Investor Indemnitors from any and all claims against the Investor 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 Investor Indemnitors on behalf of any such Investor Director with respect to any claim for which such Investor Director has sought indemnification from the Company shall affect the foregoing and the Investor 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 Investor Director against the Company. The Investor Directors and the Investor Indemnitors are intended third-party beneficiaries of this Section 5.7 and shall have the right, power and authority to enforce the provisions of this Section 5.7 as though they were a party to this Agreement.

5.8 Right to Conduct Activities. The Company hereby agrees and acknowledges that each of the Investors are professional investment organizations, and as such review the business plans and related proprietary information of many enterprises, some of which may compete directly or indirectly with the Company's business (as currently conducted or as currently propose to be conducted). Nothing in this Agreement shall preclude or in any way restrict any Investor from evaluating or purchasing securities, including publicly traded securities, of a particular enterprise, or investing or participating in any particular enterprise whether or not such enterprise has products or services which compete with those of the Company; and the Company hereby agrees that, to the extent permitted under applicable law, no Investor (or its Affiliates) shall be liable to the Company for any claim arising out of, or based upon, (i) the investment by such Investor (or its Affiliates) in any entity competitive with the Company, or (ii) actions taken by any partner, officer, employee or other representative of such Investor (or its Affiliates) 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 Investors from liability associated with the disclosure of the Company's confidential information obtained pursuant to this Agreement in violation of Section 3.4, or (y) any director or officer of the Company from any liability associated with his or her fiduciary duties to the Company.

5.9 Termination of Covenants. The covenants set forth in this Section 5, except for Sections 5.6 and 5.7, shall terminate and be of no further force or effect (i) immediately before the consummation of the IPO, or (ii) upon a Deemed Liquidation Event, 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; (iii) after such transfer, together with its Affiliates, would be a Major Investor or (iv) acquires all 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, as a condition to the applicable transfer, establish 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 shall be governed by the internal law of the State of Delaware, without regard to conflict of law principles that would result in the application of any law other than the law of the State of Delaware.

6.3 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. Counterparts may be delivered via facsimile, electronic mail (including pdf or any electronic signature complying with the U.S. federal ESIGN Act of 2000, *e.g.*, www.docusign.com) or other transmission method and any counterpart so delivered shall be deemed to have been duly and validly delivered and be valid and effective for all purposes.

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.

(a) 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 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 days after having been sent by registered or certified mail, return receipt requested, postage prepaid; or (iv) one 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 (x) to the respective parties (other than the Company) at their addresses as set forth on Schedule A hereto, (y) with respect to the Company, to 6154 Nancy Ridge Drive, San Diego, CA 92121, Attention: Chief Executive Officer, and a copy (which copy shall not constitute notice) shall also be sent to Cooley LLP, 4401 Eastgate Mall, San Diego, CA 92121-1909, Attn: Steven M. Przesmicki, e-mail: przes@cooley.com, or (z) with respect to any party, to such other email address or address as subsequently notified by such party in accordance with this Section 6.5(a).

(b) Consent to Electronic Notice. Each Investor consents to the delivery of any stockholder notice pursuant to the Delaware General Corporation Law (the “**DGCL**”), as amended or superseded from time to time, by electronic transmission pursuant to Section 232 of the DGCL (or any successor thereto) at the electronic mail address set forth below such Investor’s name on the Schedules hereto, as updated from time to time by notice to the Company, or as on the books of the Company. To the extent that any notice given by means of electronic transmission is returned or undeliverable for any reason, the foregoing consent shall be deemed to have been revoked until a new or corrected electronic mail address has been provided, and such attempted electronic notice shall be ineffective and deemed to not have been given. Each Investor agrees to promptly notify the Company of any change in such stockholder’s electronic mail address, and that failure to do so shall not affect the foregoing.

6.6 Amendments and Waivers. Any term of this Agreement may be amended, modified or terminated 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 with the written consent of the Company and the holders of at least a majority of the Registrable Securities then outstanding; 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. Notwithstanding the foregoing, (a) this Agreement may not be amended, modified or terminated and the observance of any term hereof may not be waived with respect to any Investor or Major Investor, as applicable, without the written consent of such Investor or Major Investor, as applicable, unless such amendment, modification, termination, or waiver applies to all Investors or Major Investors, as applicable, 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 Major Investors in the same fashion if such waiver does so by its terms, notwithstanding the fact that certain Major Investors may nonetheless, by agreement with the Company, purchase securities in such transaction; (b) Sections 3.1 and 3.2, Section 4 and any other section of this Agreement applicable to the Major Investors (including this clause (b) of this Section 6.6) may be amended, modified, terminated or waived with only the written consent of the Company and the holders of at least a majority of the Registrable Securities (or, solely for the purposes of Section 4, at least a majority of the Registrable Securities and the shares of Common Stock held by ARNA) then outstanding and held by the Major Investors, (c) clause (ii) of Section 1.5 may be amended, modified, terminated or waived only with the written consent of the Company and ARNA, (d) clause (iii) of Section 1.5 may be amended, modified, terminated or waived only with the written consent of the Company and Farallon, and (e) the proviso in Section 1.19 may be amended, modified, terminated or waived only with the written consent of the Company and ARNA. Notwithstanding the foregoing, Schedule A hereto may be amended by the Company from time to time to add transferees of any Registrable Securities in compliance with the terms of this Agreement without the consent of the other parties; and Schedule A hereto may also be amended by the Company after the date of this Agreement without the consent of the other parties to add information regarding any additional Investor who becomes a party to this Agreement in accordance with Section 6.9. The Company shall give prompt notice of any amendment, modification or termination hereof or waiver hereunder to any party hereto that did not consent in writing to such amendment, modification, termination, or waiver. Any amendment, modification, 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.

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; Apportionment. 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 Preferred Stock after the date hereof, 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 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 Court of Chancery of the State of Delaware for the purpose of any suit, action or other proceeding arising out of or based upon this Agreement, provided, that if jurisdiction is not then available in the Court of Chancery of the State of Delaware, then any such legal action or proceeding may be brought in any federal court located in the State of Delaware or any other Delaware state court, (b) agree not to commence any suit, action or other proceeding arising out of or based upon this Agreement except in the above-named courts, 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 or thereof may not be enforced in or by such court.

WAIVER OF JURY TRIAL: EACH PARTY HEREBY WAIVES ITS RIGHTS TO A JURY TRIAL OF ANY CLAIM OR CAUSE OF ACTION BASED UPON OR ARISING OUT OF THIS AGREEMENT, THE OTHER TRANSACTION DOCUMENTS, THE SECURITIES OR THE SUBJECT MATTER HEREOF OR THEREOF. THE SCOPE OF THIS WAIVER IS

INTENDED TO BE ALL-ENCOMPASSING OF ANY AND ALL DISPUTES THAT MAY BE FILED IN ANY COURT AND THAT RELATE TO THE SUBJECT MATTER OF THIS TRANSACTION, INCLUDING, WITHOUT LIMITATION, CONTRACT CLAIMS, TORT CLAIMS (INCLUDING NEGLIGENCE), BREACH OF DUTY CLAIMS, AND ALL OTHER COMMON LAW AND STATUTORY CLAIMS. THIS SECTION HAS BEEN FULLY DISCUSSED BY EACH OF THE PARTIES HERETO AND THESE PROVISIONS WILL NOT BE SUBJECT TO ANY EXCEPTIONS. EACH PARTY HERETO HEREBY FURTHER WARRANTS AND REPRESENTS THAT SUCH PARTY HAS REVIEWED THIS WAIVER WITH ITS LEGAL COUNSEL, AND THAT SUCH PARTY KNOWINGLY AND VOLUNTARILY WAIVES ITS JURY TRIAL RIGHTS FOLLOWING CONSULTATION WITH LEGAL COUNSEL.

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 non-defaulting 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.

[Signature Pages Follow]

IN WITNESS WHEREOF, the parties have executed this Investors' Rights Agreement as of the date first written above.

COMPANY:

LONGBOARD PHARMACEUTICALS, INC.

By: /s/ Kevin Lind

Name: Kevin Lind

Title: President, Chief Executive Officer and
Chief Financial Officer

Address: c/o Arena Pharmaceuticals, Inc.
6154 Nancy Ridge Drive
San Diego, CA 92121
Attn: Kevin Lind

IN WITNESS WHEREOF, the parties have executed this Investors’ Rights Agreement as of the date first written above.

INVESTOR:

ZONE II HEALTHCARE HOLDINGS, LLC

By: Farallon Capital Management, L.L.C.,
its Manager

By: /s/ Philip Dreyfuss
Name: Philip Dreyfus
Title: Managing Member

IN WITNESS WHEREOF, the parties have executed this Investors’ Rights Agreement as of the date first written above.

INVESTOR:

POTOMAC PARTNERS LTD

By: /s/ Lee Hobson
Name: Lee Hobson
Title: General Partner

IN WITNESS WHEREOF, the parties have executed this Investors’ Rights Agreement as of the date first written above.

INVESTOR:

MIRAMAR KRCB I, LLC

By: /s/ Tai-Li Chang
Name: Tai-Li Chang
Title: Managing Member

&

/s/ Tai-Li Chang

IN WITNESS WHEREOF, the parties have executed this Investors’ Rights Agreement as of the date first written above.

INVESTOR:

**HBM HEALTHCARE INVESTMENTS
(CAYMAN) LTD.**

By: /s/ Jean-Marc Lesieur
Name: Jean-Marc Lesieur
Title: Managing Director

INVESTOR:

**CORMORANT PRIVATE HEALTHCARE FUND III,
LP**

**BY: CORMORANT PRIVATE HEALTHCARE GP,
LLC**

By: /s/ Bihua Chen

Name: Bihua Chen

Title: Managing Member

IN WITNESS WHEREOF, the parties have executed this Investors' Rights Agreement as of the date first written above.

INVESTOR:

**CORMORANT GLOBAL HEALTHCARE MASTER
FUND, LP**

**BY: CORMORANT PRIVATE HEALTHCARE GP,
LLC**

By: /s/ Bihua Chen

Name: Bihua Chen

Title: Managing Member

IN WITNESS WHEREOF, the parties have executed this Investors’ Rights Agreement as of the date first written above.

INVESTOR:

CRMA SPV, L.P.

BY: CORMORANT ASSET MANAGEMENT, LP

By: /s/ Bihua Chen
Name: Bihua Chen
Title: Its attorney-in-fact

IN WITNESS WHEREOF, the parties have executed this Investors’ Rights Agreement as of the date first written above.

INVESTOR:

T. ROWE PRICE HEALTH SCIENCES FUND, INC.
TD MUTUAL FUNDS –
TD HEALTH SCIENCES FUND
VALIC COMPANY I – HEALTH SCIENCES FUND
T. ROWE PRICE HEALTH SCIENCES PORTFOLIO

Each account severally, and not jointly

By: T. Rowe Price Associates, Inc., Investment Advisor or
Subadvisor, as applicable

By: /s/ Andrew Baek
Name: Andrew Baek
Title: Vice President

IN WITNESS WHEREOF, the parties have executed this Investors’ Rights Agreement as of the date first written above.

INVESTOR:

**T. ROWE NEW HORIZONS FUND INC.
T. ROWE PRICE NEW HORIZONS TRUST
T. ROWE PRICE U.S. EQUITIES TRUST
MASSMUTUAL SELECT FUNDS – MASSMUTUAL
SELECT T. ROWE PRICE SMALL AND MID CAP
BLEND FUND**

Each account severally, and not jointly

By: T. Rowe Price Associates, Inc., Investment Advisor or
Subadvisor, as applicable

By: /s/ Andrew Baek
Name: Andrew Baek
Title: Vice President

IN WITNESS WHEREOF, the parties have executed this Investors’ Rights Agreement as of the date first written above.

INVESTOR:

ARENA PHARMACEUTICALS, INC.

By: /s/ Amit D. Munshi
Name: Amit D. Munshi
Title: President and Chief Executive Officer

SCHEDULE A**INVESTORS****Name and Address**

Zone II Healthcare Holdings, LLC
c/o Farallon Capital Management, L.L.C.
One Maritime Plaza, Suite 2100
San Francisco, CA 94111
Attn: Philip Dreyfuss
E-mail:

Potomac Partners Ltd
3889 Maple Avenue, Suite 550
Dallas, TX 75219
Email:

Miramar KRCB I, LLC
3720 Mockingbird Lane
Dallas, TX 75205
Email:

Tai-Li Chang
3720 Mockingbird Lane
Dallas, TX 75205
Email:

HBM Healthcare Investments (Cayman) Ltd.
Governors Square, Suite #4-212-2
23 Lime Tree Bay Avenue
West Bay
Grand Cayman, Cayman Islands
Attention: Jean-Marc LeSieur
Email:

Cormorant Private Healthcare Fund III, LP
200 Clarendon Street, 52nd Floor
Boston, MA 02116
Attention: Jay Scollins

Cormorant Global Healthcare Master Fund, LP

200 Clarendon Street, 52nd Floor

Boston, MA 02116

Attention: Jay Scollins

CRMA SPV, L.P.

200 Clarendon Street, 52nd Floor

Boston, MA 02116

Attention: Jay Scollins

T. Rowe Price New Horizons Fund, Inc.

T. Rowe Price Associates, Inc.

100 East Pratt Street

Baltimore, MD 21202

Attn: Andrew Baek, Vice President and Senior Legal Counsel

Phone: 410-345-2090

Email: andrew.baek@troweprice.com

T. Rowe Price New Horizons Trust

T. Rowe Price Associates, Inc.

100 East Pratt Street

Baltimore, MD 21202

Attn: Andrew Baek, Vice President and Senior Legal Counsel

Phone: 410-345-2090

Email: andrew.baek@troweprice.com

T. Rowe Price U.S. Equities Trust

T. Rowe Price Associates, Inc.

100 East Pratt Street

Baltimore, MD 21202

Attn: Andrew Baek, Vice President and Senior Legal Counsel

Phone: 410-345-2090

Email: andrew.baek@troweprice.com

MassMutual Select Funds - MassMutual Select T. Rowe Price Small and Mid Cap Blend Fund

T. Rowe Price Associates, Inc.

100 East Pratt Street

Baltimore, MD 21202

Attn: Andrew Baek, Vice President and Senior Legal Counsel

Phone: 410-345-2090

Email: andrew.baek@troweprice.com

T. Rowe Price Health Sciences Fund, Inc.

T. Rowe Price Associates, Inc.
100 East Pratt Street
Baltimore, MD 21202
Attn: Andrew Baek, Vice President and Senior Legal Counsel
Phone: 410-345-2090
Email: andrew.baek@troweprice.com

TD Mutual Funds – TD Health Sciences Fund

T. Rowe Price Associates, Inc.
100 East Pratt Street
Baltimore, MD 21202
Attn: Andrew Baek, Vice President and Senior Legal Counsel
Phone: 410-345-2090
Email: andrew.baek@troweprice.com

VALIC Company I - Health Sciences Fund

T. Rowe Price Associates, Inc.
100 East Pratt Street
Baltimore, MD 21202
Attn: Andrew Baek, Vice President and Senior Legal Counsel
Phone: 410-345-2090
Email: andrew.baek@troweprice.com

T. Rowe Price Health Sciences Portfolio

T. Rowe Price Associates, Inc.
100 East Pratt Street
Baltimore, MD 21202
Attn: Andrew Baek, Vice President and Senior Legal Counsel
Phone: 410-345-2090
Email: andrew.baek@troweprice.com

Arena Pharmaceuticals, Inc.

6154 Nancy Ridge Drive
San Diego, CA 92121
Tel: 858.453.7200
E-mail: jschmidt@arenapharm.com

LONGBOARD PHARMACEUTICALS, INC.

2020 EQUITY INCENTIVE PLAN

ADOPTED BY THE BOARD OF DIRECTORS: October 27, 2020

APPROVED BY THE STOCKHOLDERS: October 27, 2020

TERMINATION DATE: October 27, 2030

1. General.

(a) **Eligible Stock Award Recipients.** Employees, Directors and Consultants are eligible to receive Stock Awards.

(b) **Available Stock Awards.** The Plan provides for the grant of the following types of Stock Awards: (i) Incentive Stock Options, (ii) Nonstatutory Stock Options, (iii) Stock Appreciation Rights, (iv) Restricted Stock Awards, (v) Restricted Stock Unit Awards and (vi) Other Stock Awards.

(c) **Purpose.** The Plan, through the grant of Stock Awards, is intended to help the Company secure and retain the services of eligible award recipients, provide incentives for such persons to exert maximum efforts for the success of the Company and any Affiliate and provide a means by which the eligible recipients may benefit from increases in value of the Common Stock.

2. Administration.

(a) **Administration by the Board.** The Board will administer the Plan. The Board may delegate administration of the Plan to a Committee or Committees, as provided in Section 2(c).

(b) **Powers of the Board.** The Board will have the power, subject to, and within the limitations of, the express provisions of the Plan:

(i) To determine (A) who will be granted Stock Awards; (B) when and how each Stock Award will be granted; (C) what type of Stock Award will be granted; (D) the provisions of each Stock Award (which need not be identical), including when a person will be permitted to exercise or otherwise receive cash or Common Stock under the Stock Award; (E) the number of shares of Common Stock subject to, or the cash value of, a Stock Award; and (F) the Fair Market Value applicable to a Stock Award.

(ii) To construe and interpret the Plan and Stock Awards granted under it, and to establish, amend and revoke rules and regulations for administration of the Plan and Stock Awards. The Board, in the exercise of these powers, may correct any defect, omission or inconsistency in the Plan or in any Stock Award Agreement, in a manner and to the extent it will deem necessary or expedient to make the Plan or Stock Award fully effective.

(iii) To settle all controversies regarding the Plan and Stock Awards granted under it.

(iv) To accelerate, in whole or in part, the time at which a Stock Award may be exercised or vest (or the time at which cash or shares of Common Stock may be issued in settlement thereof).

(v) To suspend or terminate the Plan at any time. Except as otherwise provided in the Plan or a Stock Award Agreement, suspension or termination of the Plan will not impair a Participant's rights under the Participant's then-outstanding Stock Award without the Participant's written consent except as provided in subsection (viii) below.

(vi) To amend the Plan in any respect the Board deems necessary or advisable, including, without limitation, by adopting amendments relating to Incentive Stock Options and certain nonqualified deferred compensation under Section 409A of the Code and/or bringing the Plan or Stock Awards granted under the Plan into compliance with the requirements for Incentive Stock Options or ensuring that they are exempt from, or compliant with, the requirements for nonqualified deferred compensation under Section 409A of the Code, subject to the limitations, if any, of applicable law. If required by applicable law or listing requirements, and except as provided in Section 9(a) relating to Capitalization Adjustments, the Company will seek stockholder approval of any amendment of the Plan that (A) materially increases the number of shares of Common Stock available for issuance under the Plan, (B) materially expands the class of individuals eligible to receive Stock Awards under the Plan, (C) materially increases the benefits accruing to Participants under the Plan, (D) materially reduces the price at which shares of Common Stock may be issued or purchased under the Plan, (E) materially extends the term of the Plan, or (F) materially expands the types of Stock Awards available for issuance under the Plan. Except as otherwise provided in the Plan or a Stock Award Agreement, no amendment of the Plan will materially impair a Participant's rights under an outstanding Stock Award without the Participant's written consent.

(vii) To submit any amendment to the Plan for stockholder approval, including, but not limited to, amendments to the Plan intended to satisfy the requirements of Section 422 of the Code regarding Incentive Stock Options.

(viii) To approve forms of Stock Award Agreements for use under the Plan and to amend the terms of any one or more Stock Awards, including, but not limited to, amendments to provide terms more favorable to the Participant than previously provided in the Stock Award Agreement, subject to any specified limits in the Plan that are not subject to Board discretion; *provided however*, that a Participant's rights under any Stock Award will not be impaired by any such amendment unless (A) the Company requests the consent of the affected Participant, and (B) such Participant consents in writing. Notwithstanding the foregoing, (1) a Participant's rights will not be deemed to have been impaired by any such amendment if the Board, in its sole discretion, determines that the amendment, taken as a whole, does not materially impair the Participant's rights, and (2) subject to the limitations of applicable law, if any, the Board may amend the terms of any one or more Stock Awards without the affected Participant's consent (A) to maintain the qualified status of the Stock Award as an Incentive Stock Option under Section 422 of the Code; (B) to change the terms of an Incentive Stock Option, if such change results in impairment of the Stock Award solely because it impairs the qualified status of the Stock Award as an Incentive Stock Option under Section 422 of the Code; (C) to clarify the manner of exemption from, or to bring the Stock Award into compliance with, Section 409A of the Code; or (D) to comply with other applicable laws.

(ix) Generally, to exercise such powers and to perform such acts as the Board deems necessary or expedient to promote the best interests of the Company and that are not in conflict with the provisions of the Plan or Stock Awards.

(x) To adopt such procedures and sub-plans as are necessary or appropriate to permit participation in the Plan by Employees, Directors or Consultants who are foreign nationals or employed

outside the United States (provided that Board approval will not be necessary for immaterial modifications to the Plan or any Stock Award Agreement that are required for compliance with the laws of the relevant foreign jurisdiction).

(xi) To effect, with the consent of any adversely affected Participant, (A) the reduction of the exercise, purchase or strike price of any outstanding Stock Award; (B) the cancellation of any outstanding Stock Award and the grant in substitution therefor of a new (1) Option or SAR, (2) Restricted Stock Award, (3) Restricted Stock Unit Award, (4) Other Stock Award, (5) cash and/or (6) other valuable consideration determined by the Board, in its sole discretion, with any such substituted award (x) covering the same or a different number of shares of Common Stock as the cancelled Stock Award and (y) granted under the Plan or another equity or compensatory plan of the Company; or (C) any other action that is treated as a repricing under generally accepted accounting principles.

(c) **Delegation to Committee.** The Board may delegate some or all of the administration of the Plan to a Committee or Committees. If administration of the Plan is delegated to a Committee, the Committee will have, in connection with the administration of the Plan, the powers theretofore possessed by the Board that have been delegated to the Committee, including the power to delegate to a subcommittee of the Committee any of the administrative powers the Committee is authorized to exercise (and references in this Plan to the Board will thereafter be to the Committee or subcommittee, as applicable). Any delegation of administrative powers will be reflected in resolutions, not inconsistent with the provisions of the Plan, adopted from time to time by the Board or Committee (as applicable). The Board may retain the authority to concurrently administer the Plan with the Committee and may, at any time, revert in the Board some or all of the powers previously delegated.

(d) **Delegation to an Officer.** The Board may delegate to one or more Officers the authority to do one or both of the following: (i) designate Employees who are not Officers to be recipients of Options and SARs (and, to the extent permitted by applicable law, other Stock Awards) and, to the extent permitted by applicable law, the terms of such Stock Awards, and (ii) determine the number of shares of Common Stock to be subject to such Stock Awards granted to such Employees; *provided, however*, that the Board resolutions regarding such delegation will specify the total number of shares of Common Stock that may be subject to the Stock Awards granted by such Officer and that such Officer may not grant a Stock Award to himself or herself. Any such Stock Awards will be granted on the form of Stock Award Agreement most recently approved for use by the Committee or the Board, unless otherwise provided in the resolutions approving the delegation authority. The Board may not delegate authority to an Officer who is acting solely in the capacity of an Officer (and not also as a Director) to determine the Fair Market Value pursuant to Section 13(t) below.

(e) **Effect of Board's Decision.** All determinations, interpretations and constructions made by the Board in good faith will not be subject to review by any person and will be final, binding and conclusive on all persons.

3. Shares Subject to the Plan.

(a) Share Reserve.

(i) Subject to Section 9(a) relating to Capitalization Adjustments, the aggregate number of shares of Common Stock that may be issued pursuant to Stock Awards from and after the Effective Date will not exceed 1,717,000 shares (the "**Share Reserve**").

(ii) For clarity, the Share Reserve in this Section 3(a) is a limitation on the number of shares of Common Stock that may be issued pursuant to the Plan. Accordingly, this Section 3(a) does not limit the granting of Stock Awards except as provided in Section 7(a).

(b) **Reversion of Shares to the Share Reserve.** If a Stock Award or any portion thereof (i) expires or otherwise terminates without all of the shares covered by such Stock Award having been issued or (ii) is settled in cash (*i.e.*, the Participant receives cash rather than stock), such expiration, termination or settlement will not reduce (or otherwise offset) the number of shares of Common Stock that may be available for issuance under the Plan. If any shares of Common Stock issued pursuant to a Stock Award are forfeited back to or repurchased by the Company because of the failure to meet a contingency or condition required to vest such shares in the Participant, then the shares that are forfeited or repurchased will revert to and again become available for issuance under the Plan. Any shares reacquired by the Company in satisfaction of tax withholding obligations on a Stock Award or as consideration for the exercise or purchase price of a Stock Award will again become available for issuance under the Plan.

(c) **Incentive Stock Option Limit.** Subject to the Share Reserve and Section 9(a) relating to Capitalization Adjustments, the aggregate maximum number of shares of Common Stock that may be issued pursuant to the exercise of Incentive Stock Options will be a number of shares of Common Stock equal to three multiplied by the Share Reserve.

(d) **Source of Shares.** The stock issuable under the Plan will be shares of authorized but unissued or reacquired Common Stock, including shares repurchased by the Company on the open market or otherwise.

4. Eligibility.

(a) **Eligibility for Specific Stock Awards.** Incentive Stock Options may be granted only to employees of the Company or a “parent corporation” or “subsidiary corporation” thereof (as such terms are defined in Sections 424(e) and 424(f) of the Code). Stock Awards other than Incentive Stock Options may be granted to Employees, Directors and Consultants; *provided, however*, that Stock Awards may not be granted to Employees, Directors and Consultants who are providing Continuous Service only to any “parent” of the Company, as such term is defined in Rule 405, unless (i) the stock underlying such Stock Awards is treated as “service recipient stock” under Section 409A of the Code (for example, because the Stock Awards are granted pursuant to a corporate transaction such as a spin off transaction), (ii) the Company, in consultation with its legal counsel, has determined that such Stock Awards are otherwise exempt from Section 409A of the Code, or (iii) the Company, in consultation with its legal counsel, has determined that such Stock Awards comply with the distribution requirements of Section 409A of the Code.

(b) **Ten Percent Stockholders.** A Ten Percent Stockholder will not be granted an Incentive Stock Option unless the exercise price of such Option is at least 110% of the Fair Market Value on the date of grant and the Option is not exercisable after the expiration of five years from the date of grant.

(c) **Consultants.** A Consultant will not be eligible for the grant of a Stock Award if, at the time of grant, either the offer or sale of the Company’s securities to such Consultant is not exempt under Rule 701 because of the nature of the services that the Consultant is providing to the Company, because the Consultant is not a natural person, or because of any other provision of Rule 701, unless the Company determines that such grant need not comply with the requirements of Rule 701 and will satisfy another exemption under the Securities Act as well as comply with the securities laws of all other relevant jurisdictions.

5. Provisions Relating to Options and Stock Appreciation Rights.

Each Option or SAR will be in such form and will contain such terms and conditions as the Board deems appropriate. All Options will be separately designated Incentive Stock Options or Nonstatutory Stock Options at the time of grant, and, if certificates are issued, a separate certificate or certificates will be issued for shares of Common Stock purchased on exercise of each type of Option. If an Option is not specifically designated as an Incentive Stock Option, or if an Option is designated as an Incentive Stock Option but some portion or all of the Option fails to qualify as an Incentive Stock Option under the applicable rules, then the Option (or portion thereof) will be a Nonstatutory Stock Option. The provisions of separate Options or SARs need not be identical; *provided, however*, that each Stock Award Agreement will conform to (through incorporation of provisions hereof by reference in the applicable Stock Award Agreement or otherwise) the substance of each of the following provisions:

(a) Term. Subject to the provisions of Section 4(b) regarding Ten Percent Stockholders, no Option or SAR will be exercisable after the expiration of 10 years from the date of its grant or such shorter period specified in the Stock Award Agreement.

(b) Exercise Price. Subject to the provisions of Section 4(b) regarding Ten Percent Stockholders, the exercise or strike price of each Option or SAR will be not less than 100% of the Fair Market Value of the Common Stock subject to the Option or SAR on the date the Stock Award is granted. Notwithstanding the foregoing, an Option or SAR may be granted with an exercise or strike price lower than 100% of the Fair Market Value of the Common Stock subject to the Stock Award if such Stock Award is granted pursuant to an assumption of or substitution for another option or stock appreciation right pursuant to a Corporate Transaction and in a manner consistent with the provisions of Section 409A of the Code and, if applicable, Section 424(a) of the Code. Each SAR will be denominated in shares of Common Stock equivalents.

(c) Purchase Price for Options. The purchase price of Common Stock acquired pursuant to the exercise of an Option may be paid, to the extent permitted by applicable law and as determined by the Board in its sole discretion, by any combination of the methods of payment set forth below. The Board will have the authority to grant Options that do not permit all of the following methods of payment (or otherwise restrict the ability to use certain methods) and to grant Options that require the consent of the Company to use a particular method of payment. The permitted methods of payment are as follows:

(i) by cash, check, bank draft, electronic funds transfer or money order payable to the Company;

(ii) subject to Company and/or Board consent at the time of exercise and provided that at the time of exercise the Common Stock is publicly traded, pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board that, prior to the issuance of Common Stock, results in either the receipt of cash (or check) by the Company or the receipt of irrevocable instructions to pay the aggregate exercise price to the Company from the sales proceeds. This manner of payment is also known as a “broker-assisted exercise”, “same day sale”, or “sell to cover”;

(iii) subject to Company and/or Board consent at the time of exercise and provided that at the time of exercise the Common Stock is publicly traded, by delivery to the Company (either by

actual delivery or attestation) of already-owned shares of Common Stock that are owned free and clear of any liens, claims, encumbrances or security interests, and that are valued at Fair Market Value on the date of exercise. "Delivery" for these purposes, in the sole discretion of the Company and/or the Board, at the time Participant exercises their Option, will include delivery to the Company of Participant's attestation of ownership of such shares of Common Stock in a form approved by the Company. Participant may not exercise their option by delivery to the Company of Common Stock if doing so would violate the provisions of any law, regulation or agreement restricting the redemption of the Company's stock;

(iv) subject to Company and/or Board consent at the time of exercise, and provided that the Option is a Nonstatutory Stock Option, by a "net exercise" arrangement pursuant to which the Company will reduce the number of shares of Common Stock issued upon exercise of the Option by the largest whole number of shares with a Fair Market Value that does not exceed the aggregate exercise price plus, to the extent permitted by the Company and/or Board at the time of exercise, the aggregate withholding obligations in respect of the Option exercise; provided, further that Participant must pay any remaining balance of the aggregate exercise price not satisfied by the "net exercise" in cash or other permitted form of payment. Shares of Common Stock will no longer be subject to the Option and will not be exercisable thereafter to the extent that (A) shares issuable upon exercise are used to pay the exercise price pursuant to the "net exercise," (B) shares are delivered to the Participant as a result of such exercise, and (C) shares are withheld to satisfy tax withholding obligations;

(v) according to a deferred payment or similar arrangement with the Optionholder; *provided, however*, that interest will compound at least annually and will be charged at the minimum rate of interest necessary to avoid (A) the imputation of interest income to the Company and compensation income to the Optionholder under any applicable provisions of the Code, and (B) the classification of the Option as a liability for financial accounting purposes; or

(vi) in any other form of legal consideration that may be acceptable to the Board.

(d) Exercise and Payment of a SAR. To exercise any outstanding SAR, the Participant must provide written notice of exercise to the Company in compliance with the provisions of the Stock Appreciation Right Agreement evidencing such SAR. The appreciation distribution payable on the exercise of a SAR will be not greater than an amount equal to the excess of (A) the aggregate Fair Market Value (on the date of the exercise of the SAR) of a number of shares of Common Stock equal to the number of Common Stock equivalents in which the Participant is vested under such SAR, and with respect to which the Participant is exercising the SAR on such date, over (B) the aggregate strike price of the number of Common Stock equivalents with respect to which the Participant is exercising the SAR on such date. The appreciation distribution may be paid in Common Stock, in cash, in any combination of the two or in any other form of consideration, as determined by the Board and contained in the Stock Award Agreement evidencing such SAR.

(e) Transferability of Options and SARs. The Board may, in its sole discretion, impose such limitations on the transferability of Options and SARs as the Board will determine. In the absence of such a determination by the Board to the contrary, the following restrictions on the transferability of Options and SARs will apply:

(i) Restrictions on Transfer. An Option or SAR will not be transferable except by will or by the laws of descent and distribution (or pursuant to subsections (ii) and (iii) below), and will be exercisable during the lifetime of the Participant only by the Participant. The Board may permit transfer of the Option or SAR in a manner that is not prohibited by applicable tax and securities laws. Except as explicitly provided in the Plan, neither an Option nor a SAR may be transferred for consideration.

(ii) Domestic Relations Orders. Subject to the approval of the Board or a duly authorized Officer, an Option or SAR may be transferred pursuant to the terms of a domestic relations order, official marital settlement agreement or other divorce or separation instrument as permitted by Treasury Regulation 1.421-1(b)(2). If an Option is an Incentive Stock Option, such Option may be deemed to be a Nonstatutory Stock Option as a result of such transfer.

(iii) Beneficiary Designation. Subject to the approval of the Board or a duly authorized Officer, a Participant may, by delivering written notice to the Company, in a form approved by the Company (or the designated broker), designate a third party who, upon the death of the Participant, will thereafter be entitled to exercise the Option or SAR and receive the Common Stock or other consideration resulting from such exercise. In the absence of such a designation, upon the death of the Participant, the executor or administrator of the Participant's estate will be entitled to exercise the Option or SAR and receive the Common Stock or other consideration resulting from such exercise. However, the Company may prohibit designation of a beneficiary at any time, including due to any conclusion by the Company that such designation would be inconsistent with the provisions of applicable laws.

(f) Vesting Generally. The total number of shares of Common Stock subject to an Option or SAR may vest and therefore become exercisable in periodic installments that may or may not be equal. The Option or SAR may be subject to such other terms and conditions on the time or times when it may or may not be exercised (which may be based on the satisfaction of performance goals or other criteria) as the Board may deem appropriate. The vesting provisions of individual Options or SARs may vary. The provisions of this Section 5(f) are subject to any Option or SAR provisions governing the minimum number of shares of Common Stock as to which an Option or SAR may be exercised.

(g) Termination of Continuous Service. Except as otherwise provided in the applicable Stock Award Agreement or other agreement between the Participant and the Company, if a Participant's Continuous Service terminates (other than for Cause and other than upon the Participant's death or Disability), the Participant may exercise his or her Option or SAR (to the extent that the Participant was entitled to exercise such Stock Award as of the date of termination of Continuous Service) within the period of time ending on the earlier of (i) the date three months following the termination of the Participant's Continuous Service (or such longer or shorter period specified in the applicable Stock Award Agreement, which period will not be less than 30 days if necessary to comply with applicable laws unless such termination is for Cause) and (ii) the expiration of the term of the Option or SAR as set forth in the Stock Award Agreement. If, after termination of Continuous Service, the Participant does not exercise his or her Option or SAR (as applicable) within the applicable time frame, the Option or SAR will terminate.

(h) Extension of Termination Date. If the exercise of an Option or SAR following the termination of the Participant's Continuous Service (other than for Cause and other than upon the Participant's death or Disability) would be prohibited at any time solely because the issuance of shares of Common Stock would violate the registration requirements under the Securities Act, then the Option or SAR will terminate on the earlier of (i) the expiration of a total period of time (that need not be consecutive) equal to the applicable post-termination exercise period after the termination of the Participant's Continuous Service during which the exercise of the Option or SAR would not be in violation of such registration requirements, and (ii) the expiration of the term of the Option or SAR as set forth in the applicable Stock Award Agreement. In addition, unless otherwise provided in a Participant's

Stock Award Agreement, if the sale of any Common Stock received upon exercise of an Option or SAR following the termination of the Participant's Continuous Service (other than for Cause) would violate the Company's insider trading policy, then the Option or SAR will terminate on the earlier of (i) the expiration of the period of time (that need not be consecutive) equal to the applicable post-termination exercise period after the termination of the Participant's Continuous Service during which the sale of the Common Stock received upon exercise of the Option or SAR would not be in violation of the Company's insider trading policy, and (ii) the expiration of the term of the Option or SAR as set forth in the applicable Stock Award Agreement.

(i) Disability of Participant. Except as otherwise provided in the applicable Stock Award Agreement or other agreement between the Participant and the Company, if a Participant's Continuous Service terminates as a result of the Participant's Disability, the Participant may exercise his or her Option or SAR (to the extent that the Participant was entitled to exercise such Option or SAR as of the date of termination of Continuous Service), but only within such period of time ending on the earlier of (i) the date 12 months following such termination of Continuous Service (or such longer or shorter period specified in the Stock Award Agreement, which period will not be less than six months if necessary to comply with applicable laws unless such termination is for Cause), and (ii) the expiration of the term of the Option or SAR as set forth in the Stock Award Agreement. If, after termination of Continuous Service, the Participant does not exercise his or her Option or SAR within the applicable time frame, the Option or SAR (as applicable) will terminate.

(j) Death of Participant. Except as otherwise provided in the applicable Stock Award Agreement or other agreement between the Participant and the Company, if (i) a Participant's Continuous Service terminates as a result of the Participant's death, or (ii) the Participant dies within the period (if any) specified in the Stock Award Agreement for exercisability after the termination of the Participant's Continuous Service (for a reason other than death), then the Option or SAR may be exercised (to the extent the Participant was entitled to exercise such Option or SAR as of the date of death) by the Participant's estate, by a person who acquired the right to exercise the Option or SAR by bequest or inheritance or by a person designated to exercise the Option or SAR upon the Participant's death, but only within the period ending on the earlier of (i) the date 18 months following the date of death (or such longer or shorter period specified in the Stock Award Agreement, which period will not be less than six months if necessary to comply with applicable laws unless such termination is for Cause), and (ii) the expiration of the term of such Option or SAR as set forth in the Stock Award Agreement. If, after the Participant's death, the Option or SAR is not exercised within the applicable time frame, the Option or SAR (as applicable) will terminate.

(k) Termination for Cause. Except as explicitly provided otherwise in a Participant's Stock Award Agreement or other individual written agreement between the Company or any Affiliate and the Participant, if a Participant's Continuous Service is terminated for Cause, the Option or SAR will terminate immediately upon such Participant's termination of Continuous Service, and the Participant will be prohibited from exercising his or her Option or SAR (whether vested or unvested) from and after the date of such termination of Continuous Service.

(l) Non-Exempt Employees. If an Option or SAR is granted to an Employee who is a non-exempt employee for purposes of the Fair Labor Standards Act of 1938, as amended, the Option or SAR will not be first exercisable for any shares of Common Stock until at least six months following the date of grant of the Option or SAR (although the Stock Award may vest prior to such date). Consistent with the provisions of the Worker Economic Opportunity Act, (i) if such non-exempt Employee dies or suffers a Disability, (ii) upon a Corporate Transaction in which such Option or SAR is not assumed, continued,

or substituted, (iii) upon a Change in Control, or (iv) upon the Participant's retirement (as such term may be defined in the Participant's Stock Award Agreement, in another agreement between the Participant and the Company, or, if no such definition, in accordance with the Company's then current employment policies and guidelines), the vested portion of any Options and SARs may be exercised earlier than six months following the date of grant. The foregoing provision is intended to operate so that any income derived by a non-exempt employee in connection with the exercise or vesting of an Option or SAR will be exempt from his or her regular rate of pay. To the extent permitted and/or required for compliance with the Worker Economic Opportunity Act to ensure that any income derived by a non-exempt employee in connection with the exercise, vesting or issuance of any shares under any other Stock Award will be exempt from the employee's regular rate of pay, the provisions of this Section 5(l) will apply to all Stock Awards and are hereby incorporated by reference into such Stock Award Agreements.

(m) Early Exercise of Options. An Option may, but need not, include a provision whereby the Optionholder may elect at any time before the Optionholder's Continuous Service terminates to exercise the Option as to any part or all of the shares of Common Stock subject to the Option prior to the full vesting of the Option. Subject to the "Repurchase Limitation" in Section 8(l), any unvested shares of Common Stock so purchased may be subject to a repurchase right in favor of the Company or to any other restriction the Board determines to be appropriate. Provided that the "Repurchase Limitation" in Section 8(l) is not violated, the Company will not be required to exercise its repurchase right until at least six months (or such longer or shorter period of time required to avoid classification of the Option as a liability for financial accounting purposes) have elapsed following exercise of the Option unless the Board otherwise specifically provides in the Option Agreement.

(n) Right of Repurchase. Subject to the "Repurchase Limitation" in Section 8(l), the Option or SAR may include a provision whereby the Company may elect to repurchase all or any part of the vested shares of Common Stock acquired by the Participant pursuant to the exercise of the Option or SAR.

(o) Right of First Refusal. The Option or SAR may include a provision whereby the Company may elect to exercise a right of first refusal following receipt of notice from the Participant of the intent to transfer all or any part of the shares of Common Stock received upon the exercise of the Option or SAR. Such right of first refusal will be subject to the "Repurchase Limitation" in Section 8(l). Except as expressly provided in this Section 5(o) or in the Stock Award Agreement, such right of first refusal will otherwise comply with any applicable provisions of the bylaws of the Company.

6. Provisions of Stock Awards Other than Options and SARs.

(a) Restricted Stock Awards. Each Restricted Stock Award Agreement will be in such form and will contain such terms and conditions as the Board will deem appropriate. To the extent consistent with the Company's bylaws, at the Board's election, shares of Common Stock underlying a Restricted Stock Award may be (i) held in book entry form subject to the Company's instructions until any restrictions relating to the Restricted Stock Award lapse; or (ii) evidenced by a certificate, which certificate will be held in such form and manner as determined by the Board. The terms and conditions of Restricted Stock Award Agreements may change from time to time, and the terms and conditions of separate Restricted Stock Award Agreements need not be identical.

Each Restricted Stock Award Agreement will conform to (through incorporation of the provisions hereof by reference in the agreement or otherwise) the substance of each of the following provisions:

(i) Consideration. A Restricted Stock Award may be awarded in consideration for (A) cash, check, bank draft or money order payable to the Company, (B) past services to the Company or an Affiliate, or (C) any other form of legal consideration (including future services) that may be acceptable to the Board, in its sole discretion, and permissible under applicable law.

(ii) Vesting. Subject to the “Repurchase Limitation” in Section 8(l), shares of Common Stock awarded under the Restricted Stock Award Agreement may be subject to forfeiture to the Company in accordance with a vesting schedule to be determined by the Board.

(iii) Termination of Participant’s Continuous Service. If a Participant’s Continuous Service terminates, the Company may receive through a forfeiture condition or a repurchase right, any or all of the shares of Common Stock held by the Participant that have not vested as of the date of termination of Continuous Service under the terms of the Restricted Stock Award Agreement.

(iv) Transferability. Rights to acquire shares of Common Stock under the Restricted Stock Award Agreement will be transferable by the Participant only upon such terms and conditions as are set forth in the Restricted Stock Award Agreement, as the Board will determine in its sole discretion, so long as Common Stock awarded under the Restricted Stock Award Agreement remains subject to the terms of the Restricted Stock Award Agreement.

(v) Dividends. A Restricted Stock Award Agreement may provide that any dividends paid on Restricted Stock will be subject to the same vesting and forfeiture restrictions as apply to the shares subject to the Restricted Stock Award to which they relate.

(b) Restricted Stock Unit Awards. Each Restricted Stock Unit Award Agreement will be in such form and will contain such terms and conditions as the Board will deem appropriate. The terms and conditions of Restricted Stock Unit Award Agreements may change from time to time, and the terms and conditions of separate Restricted Stock Unit Award Agreements need not be identical. Each Restricted Stock Unit Award Agreement will conform to (through incorporation of the provisions hereof by reference in the Agreement or otherwise) the substance of each of the following provisions:

(i) Consideration. At the time of grant of a Restricted Stock Unit Award, the Board will determine the consideration, if any, to be paid by the Participant upon delivery of each share of Common Stock subject to the Restricted Stock Unit Award. The consideration to be paid (if any) by the Participant for each share of Common Stock subject to a Restricted Stock Unit Award may be paid in any form of legal consideration that may be acceptable to the Board, in its sole discretion, and permissible under applicable law.

(ii) Vesting. At the time of the grant of a Restricted Stock Unit Award, the Board may impose such restrictions on or conditions to the vesting of the Restricted Stock Unit Award as it, in its sole discretion, deems appropriate.

(iii) Payment. A Restricted Stock Unit Award may be settled by the delivery of shares of Common Stock, their cash equivalent, any combination thereof or in any other form of consideration, as determined by the Board and contained in the Restricted Stock Unit Award Agreement.

(iv) Additional Restrictions. At the time of the grant of a Restricted Stock Unit Award, the Board, as it deems appropriate, may impose such restrictions or conditions that delay the delivery of the shares of Common Stock (or their cash equivalent) subject to a Restricted Stock Unit Award to a time after the vesting of such Restricted Stock Unit Award.

(v) **Dividend Equivalents.** Dividend equivalents may be credited in respect of shares of Common Stock covered by a Restricted Stock Unit Award, as determined by the Board and contained in the Restricted Stock Unit Award Agreement. At the sole discretion of the Board, such dividend equivalents may be converted into additional shares of Common Stock covered by the Restricted Stock Unit Award in such manner as determined by the Board. Any additional shares covered by the Restricted Stock Unit Award credited by reason of such dividend equivalents will be subject to all of the same terms and conditions of the underlying Restricted Stock Unit Award Agreement to which they relate.

(vi) **Termination of Participant's Continuous Service.** Except as otherwise provided in the applicable Restricted Stock Unit Award Agreement, such portion of the Restricted Stock Unit Award that has not vested will be forfeited upon the Participant's termination of Continuous Service.

(vii) **Compliance with Section 409A of the Code.** Notwithstanding anything to the contrary set forth herein, any Restricted Stock Unit Award granted under the Plan that is not exempt from the requirements of Section 409A of the Code will contain such provisions so that such Restricted Stock Unit Award will comply with the requirements of Section 409A of the Code. Such restrictions, if any, will be determined by the Board and contained in the Restricted Stock Unit Award Agreement evidencing such Restricted Stock Unit Award. For example, such restrictions may include, without limitation, a requirement that any Common Stock that is to be issued in a year following the year in which the Restricted Stock Unit Award vests must be issued in accordance with a fixed pre-determined schedule.

(c) **Other Stock Awards.** Other forms of Stock Awards valued in whole or in part by reference to, or otherwise based on, Common Stock, including the appreciation in value thereof (e.g., options or stock rights with an exercise price or strike price less than 100% of the Fair Market Value of the Common Stock at the time of grant) may be granted either alone or in addition to Stock Awards provided for under Section 5 and the preceding provisions of this Section 6. Subject to the provisions of the Plan, the Board will have sole and complete authority to determine the persons to whom and the time or times at which such Other Stock Awards will be granted, the number of shares of Common Stock (or the cash equivalent thereof) to be granted pursuant to such Other Stock Awards and all other terms and conditions of such Other Stock Awards.

7. Covenants of the Company.

(a) **Availability of Shares.** The Company will keep available at all times the number of shares of Common Stock reasonably required to satisfy then-outstanding Stock Awards.

(b) **Securities Law Compliance.** The Company will seek to obtain from each regulatory commission or agency having jurisdiction over the Plan such authority as may be required to grant Stock Awards and to issue and sell shares of Common Stock upon exercise of the Stock Awards; *provided, however,* that this undertaking will not require the Company to register under the Securities Act the Plan, any Stock Award or any Common Stock issued or issuable pursuant to any such Stock Award. If, after reasonable efforts and at a reasonable cost, the Company is unable to obtain from any such regulatory commission or agency the authority that counsel for the Company deems necessary for the lawful issuance and sale of Common Stock under the Plan, the Company will be relieved from any liability for failure to issue and sell Common Stock upon exercise of such Stock Awards unless and until such

authority is obtained. A Participant will not be eligible for the grant of a Stock Award or the subsequent issuance of cash or Common Stock pursuant to the Stock Award if such grant or issuance would be in violation of any applicable securities law.

(c) No Obligation to Notify or Minimize Taxes. The Company will have no duty or obligation to any Participant to advise such holder as to the time or manner of exercising such Stock Award. Furthermore, the Company will have no duty or obligation to warn or otherwise advise such holder of a pending termination or expiration of a Stock Award or a possible period in which the Stock Award may not be exercised. The Company has no duty or obligation to minimize the tax consequences of a Stock Award to the holder of such Stock Award.

8. Miscellaneous.

(a) Use of Proceeds from Sales of Common Stock. Proceeds from the sale of shares of Common Stock pursuant to Stock Awards will constitute general funds of the Company.

(b) Corporate Action Constituting Grant of Stock Awards. Corporate action constituting a grant by the Company of a Stock Award to any Participant will be deemed completed as of the date of such corporate action, unless otherwise determined by the Board, regardless of when the instrument, certificate, or letter evidencing the Stock Award is communicated to, or actually received or accepted by, the Participant. In the event that the corporate records (e.g., Board consents, resolutions or minutes) documenting the corporate action constituting the grant contain terms (e.g., exercise price, vesting schedule or number of shares) that are inconsistent with those in the Stock Award Agreement or related grant documents as a result of a clerical error in the papering of the Stock Award Agreement or related grant documents, the corporate records will control and the Participant will have no legally binding right to the incorrect term in the Stock Award Agreement or related grant documents.

(c) Stockholder Rights. No Participant will be deemed to be the holder of, or to have any of the rights of a holder with respect to, any shares of Common Stock subject to a Stock Award unless and until (i) such Participant has satisfied all requirements for exercise of, or the issuance of shares of Common Stock under, the Stock Award pursuant to its terms, and (ii) the issuance of the Common Stock subject to the Stock Award has been entered into the books and records of the Company.

(d) No Employment or Other Service Rights. Nothing in the Plan, any Stock Award Agreement or any other instrument executed thereunder or in connection with any Stock Award granted pursuant thereto will confer upon any Participant any right to continue to serve the Company or an Affiliate in the capacity in effect at the time the Stock Award was granted or will affect the right of the Company or an Affiliate to terminate (i) the employment of an Employee with or without notice and with or without cause, (ii) the service of a Consultant pursuant to the terms of such Consultant's agreement with the Company or an Affiliate, or (iii) the service of a Director pursuant to the bylaws of the Company or an Affiliate, and any applicable provisions of the corporate law of the state in which the Company or the Affiliate is incorporated, as the case may be.

(e) Change in Time Commitment. In the event a Participant's regular level of time commitment in the performance of his or her services for the Company and any Affiliates is reduced (for example, and without limitation, if the Participant is an Employee of the Company and the Employee has a change in status from a full-time Employee to a part-time Employee or takes an extended leave of absence) after the date of grant of any Stock Award to the Participant, the Board has the right in its sole discretion to (x) make a corresponding reduction in the number of shares subject to any portion of such

Stock Award that is scheduled to vest or become payable after the date of such change in time commitment, and (y) in lieu of or in combination with such a reduction, extend the vesting or payment schedule applicable to such Stock Award. In the event of any such reduction, the Participant will have no right with respect to any portion of the Stock Award that is so reduced or extended.

(f) Incentive Stock Option Limitations. To the extent that the aggregate Fair Market Value (determined at the time of grant) of Common Stock with respect to which Incentive Stock Options are exercisable for the first time by any Optionholder during any calendar year (under all plans of the Company and any Affiliates) exceeds \$100,000 (or such other limit established in the Code) or otherwise does not comply with the rules governing Incentive Stock Options, the Options or portions thereof that exceed such limit (according to the order in which they were granted) or otherwise do not comply with such rules will be treated as Nonstatutory Stock Options, notwithstanding any contrary provision of the applicable Option Agreement(s).

(g) Investment Assurances. The Company may require a Participant, as a condition of exercising or acquiring Common Stock under any Stock Award, (i) to give written assurances satisfactory to the Company as to the Participant's knowledge and experience in financial and business matters and/or to employ a purchaser representative reasonably satisfactory to the Company who is knowledgeable and experienced in financial and business matters and that the Participant is capable of evaluating, alone or together with the purchaser representative, the merits and risks of exercising the Stock Award; and (ii) to give written assurances satisfactory to the Company stating that the Participant is acquiring Common Stock subject to the Stock Award for the Participant's own account and not with any present intention of selling or otherwise distributing the Common Stock. The foregoing requirements, and any assurances given pursuant to such requirements, will be inoperative if (A) the issuance of the shares upon the exercise or acquisition of Common Stock under the Stock Award has been registered under a then currently effective registration statement under the Securities Act, or (B) as to any particular requirement, a determination is made by counsel for the Company that such requirement need not be met in the circumstances under the then applicable securities laws. The Company may, upon advice of counsel to the Company, place legends on stock certificates issued under the Plan as such counsel deems necessary or appropriate in order to comply with applicable securities laws, including, but not limited to, legends restricting the transfer of the Common Stock.

(h) Withholding Obligations. Unless prohibited by the terms of a Stock Award Agreement, the Company may, in its sole discretion, satisfy any federal, state or local tax withholding obligation relating to a Stock Award by any of the following means or by a combination of such means: (i) causing the Participant to tender a cash payment; (ii) withholding shares of Common Stock from the shares of Common Stock issued or otherwise issuable to the Participant in connection with the Stock Award; *provided, however*, that no shares of Common Stock are withheld with a value exceeding the maximum amount of tax required to be withheld by law (or such lesser amount as may be necessary to avoid classification of the Stock Award as a liability for financial accounting purposes); (iii) withholding cash from a Stock Award settled in cash; (iv) withholding payment from any amounts otherwise payable to the Participant; or (v) by such other method as may be set forth in the Stock Award Agreement.

(i) Electronic Delivery. Any reference herein to a "written" agreement or document will include any agreement or document delivered electronically or posted on the Company's intranet (or other shared electronic medium controlled by the Company to which the Participant has access).

(j) Deferrals. To the extent permitted by applicable law, the Board, in its sole discretion, may determine that the delivery of Common Stock or the payment of cash, upon the exercise, vesting or

settlement of all or a portion of any Stock Award may be deferred and may establish programs and procedures for deferral elections to be made by Participants. Deferrals by Participants will be made in accordance with Section 409A of the Code. Consistent with Section 409A of the Code, the Board may provide for distributions while a Participant is still an employee or otherwise providing services to the Company. The Board is authorized to make deferrals of Stock Awards and determine when, and in what annual percentages, Participants may receive payments, including lump sum payments, following the Participant's termination of Continuous Service, and implement such other terms and conditions consistent with the provisions of the Plan and in accordance with applicable law.

(k) Compliance with Section 409A of the Code. To the extent that the Board determines that any Stock Award granted hereunder is subject to Section 409A of the Code, the Stock Award Agreement evidencing such Stock Award will incorporate the terms and conditions necessary to avoid the consequences specified in Section 409A(a)(1) of the Code. To the extent applicable, the Plan and Stock Award Agreements will be interpreted in accordance with Section 409A of the Code. Notwithstanding anything to the contrary in the Plan (and unless the Stock Award Agreement specifically provides otherwise), if the shares of Common Stock are publicly traded, and if a Participant holding a Stock Award that constitutes "deferred compensation" under Section 409A of the Code is a "specified employee" for purposes of Section 409A of the Code, no distribution or payment of any amount that is due because of a "separation from service" (as defined in Section 409A of the Code without regard to alternative definitions thereunder) will be issued or paid before the date that is six months following the date of such Participant's "separation from service" (as defined in Section 409A of the Code without regard to alternative definitions thereunder) or, if earlier, the date of the Participant's death, unless such distribution or payment can be made in a manner that complies with Section 409A of the Code, and any amounts so deferred will be paid in a lump sum on the day after such six month period elapses, with the balance paid thereafter on the original schedule.

(l) Repurchase Limitation. The terms of any repurchase right will be specified in the Stock Award Agreement. The repurchase price for vested shares of Common Stock will be the Fair Market Value of the shares of Common Stock on the date of repurchase. The repurchase price for unvested shares of Common Stock will be the lower of (i) the Fair Market Value of the shares of Common Stock on the date of repurchase or (ii) their original purchase price. However, the Company will not exercise its repurchase right until at least six months (or such longer or shorter period of time necessary to avoid classification of the Stock Award as a liability for financial accounting purposes) have elapsed following delivery of shares of Common Stock subject to the Stock Award, unless otherwise specifically provided by the Board.

9. Adjustments upon Changes in Common Stock; Other Corporate Events.

(a) Capitalization Adjustments. In the event of a Capitalization Adjustment, the Board will appropriately and proportionately adjust: (i) the class(es) and maximum number of securities subject to the Plan pursuant to Section 3(a), (ii) the class(es) and maximum number of securities that may be issued pursuant to the exercise of Incentive Stock Options pursuant to Section 3(c), and (iii) the class(es) and number of securities and price per share of stock subject to outstanding Stock Awards. The Board will make such adjustments, and its determination will be final, binding and conclusive.

(b) Dissolution or Liquidation. Except as otherwise provided in the Stock Award Agreement, in the event of a dissolution or liquidation of the Company, all outstanding Stock Awards (other than Stock Awards consisting of vested and outstanding shares of Common Stock not subject to a forfeiture condition or the Company's right of repurchase) will terminate immediately prior to the

completion of such dissolution or liquidation, and the shares of Common Stock subject to the Company's repurchase rights or subject to a forfeiture condition may be repurchased or reacquired by the Company notwithstanding the fact that the holder of such Stock Award is providing Continuous Service, *provided, however*, that the Board may, in its sole discretion, cause some or all Stock Awards to become fully vested, exercisable and/or no longer subject to repurchase or forfeiture (to the extent such Stock Awards have not previously expired or terminated) before the dissolution or liquidation is completed but contingent on its completion.

(c) Corporate Transaction. The following provisions will apply to Stock Awards in the event of a Corporate Transaction unless otherwise provided in the instrument evidencing the Stock Award or any other written agreement between the Company or any Affiliate and the Participant or unless otherwise expressly provided by the Board at the time of grant of a Stock Award. In the event of a Corporate Transaction, then, notwithstanding any other provision of the Plan, the Board may take one or more of the following actions with respect to Stock Awards, contingent upon the closing or completion of the Corporate Transaction:

(i) arrange for the surviving corporation or acquiring corporation (or the surviving or acquiring corporation's parent company) to assume or continue the Stock Award or to substitute a similar stock award for the Stock Award (including, but not limited to, an award to acquire the same consideration paid to the stockholders of the Company pursuant to the Corporate Transaction);

(ii) arrange for the assignment of any reacquisition or repurchase rights held by the Company in respect of Common Stock issued pursuant to the Stock Award to the surviving corporation or acquiring corporation (or the surviving or acquiring corporation's parent company);

(iii) accelerate the vesting, in whole or in part, of the Stock Award (and, if applicable, the time at which the Stock Award may be exercised) to a date prior to the effective time of such Corporate Transaction as the Board determines (or, if the Board does not determine such a date, to the date that is five days prior to the effective date of the Corporate Transaction), with such Stock Award terminating if not exercised (if applicable) at or prior to the effective time of the Corporate Transaction; *provided, however*, that the Board may require Participants to complete and deliver to the Company a notice of exercise before the effective date of a Corporate Transaction, which exercise is contingent upon the effectiveness of such Corporate Transaction;

(iv) arrange for the lapse, in whole or in part, of any reacquisition or repurchase rights held by the Company with respect to the Stock Award;

(v) cancel or arrange for the cancellation of the Stock Award, to the extent not vested or not exercised prior to the effective time of the Corporate Transaction, in exchange for such cash consideration (including no consideration) as the Board, in its sole discretion, may consider appropriate; and

(vi) make a payment, in such form as may be determined by the Board equal to the excess, if any, of (A) the value of the property the Participant would have received upon the exercise of the Stock Award immediately prior to the effective time of the Corporate Transaction, over (B) any exercise price payable by such holder in connection with such exercise. For clarity, this payment may be zero (\$0) if the value of the property is equal to or less than the exercise price. Payments under this provision may be delayed to the same extent that payment of consideration to the holders of the Company's Common Stock in connection with the Corporate Transaction is delayed as a result of escrows, earn outs, holdbacks or any other contingencies.

The Board need not take the same action or actions with respect to all Stock Awards or portions thereof or with respect to all Participants. The Board may take different actions with respect to the vested and unvested portions of a Stock Award.

(d) Change in Control. A Stock Award may be subject to additional acceleration of vesting and exercisability upon or after a Change in Control as may be provided in the Stock Award Agreement for such Stock Award or as may be provided in any other written agreement between the Company or any Affiliate and the Participant, but in the absence of such provision, no such acceleration will occur.

10. Plan Term; Earlier Termination or Suspension of the Plan.

(a) Plan Term. The Board may suspend or terminate the Plan at any time. Unless terminated sooner by the Board, the Plan will automatically terminate on the day before the 10th anniversary of the earlier of (i) the date the Plan is adopted by the Board, or (ii) the date the Plan is approved by the stockholders of the Company. No Stock Awards may be granted under the Plan while the Plan is suspended or after it is terminated.

(b) No Impairment of Rights. Suspension or termination of the Plan will not impair rights and obligations under any Stock Award granted while the Plan is in effect except with the written consent of the affected Participant or as otherwise permitted in the Plan.

11. Effective Date of Plan.

This Plan will become effective on the Effective Date.

12. Choice of Law.

The laws of the State of Delaware will govern all questions concerning the construction, validity and interpretation of this Plan, without regard to that state's conflict of laws rules.

13. Definitions. As used in the Plan, the following definitions will apply to the capitalized terms indicated below:

(a) "Affiliate" means, at the time of determination, any "parent" or "majority-owned subsidiary" of the Company, as such terms are defined in Rule 405. The Board will have the authority to determine the time or times at which "parent" or "majority-owned subsidiary" status is determined within the foregoing definition.

(b) "Board" means the Board of Directors of the Company.

(c) "Capitalization Adjustment" means any change that is made in, or other events that occur with respect to, the Common Stock subject to the Plan or subject to any Stock Award after the Effective Date without the receipt of consideration by the Company through merger, consolidation, reorganization, recapitalization, reincorporation, stock dividend, dividend in property other than cash, large nonrecurring cash dividend, stock split, reverse stock split, liquidating dividend, combination of shares, exchange of shares, change in corporate structure, or any similar equity restructuring transaction, as that term is used in Statement of Financial Accounting Standards Board Accounting Standards Codification Topic 718 (or any successor thereto). Notwithstanding the foregoing, the conversion of any convertible securities of the Company will not be treated as a Capitalization Adjustment.

(d) “Cause” will have the meaning ascribed to such term in any written agreement between the Participant and the Company defining such term and, in the absence of such agreement, such term means, with respect to a Participant, the occurrence of any of the following events: (i) such Participant’s commission of any felony or any crime involving fraud, dishonesty or moral turpitude under the laws of the United States or any state thereof; (ii) such Participant’s attempted commission of, or participation in, a fraud or act of dishonesty against the Company, or any of its employees or directors; (iii) such Participant’s intentional, material violation of any contract or agreement between the Participant and the Company, the Company’s employment policies, or of any statutory or other duty owed to the Company; (iv) such Participant’s unauthorized use or disclosure of the Company’s confidential information or trade secrets; or (v) such Participant’s gross misconduct. The determination that a termination of the Participant’s Continuous Service is either for Cause or without Cause will be made by the Company, in its sole discretion. Any determination by the Company that the Continuous Service of a Participant was terminated with or without Cause for the purposes of outstanding Stock Awards held by such Participant will have no effect upon any determination of the rights or obligations of the Company or such Participant for any other purpose.

(e) “Change in Control” means the occurrence, in a single transaction or in a series of related transactions, of any one or more of the following events:

(i) any Exchange Act Person becomes the Owner, directly or indirectly, of securities of the Company representing more than 50% of the combined voting power of the Company’s then outstanding securities other than by virtue of a merger, consolidation or similar transaction. Notwithstanding the foregoing, a Change in Control will not be deemed to occur (A) on account of the acquisition of securities of the Company directly from the Company, (B) on account of the acquisition of securities of the Company by an investor, any affiliate thereof or any other Exchange Act Person that acquires the Company’s securities in a transaction or series of related transactions the primary purpose of which is to obtain financing for the Company through the issuance of equity securities or (C) solely because the level of Ownership held by any Exchange Act Person (the “Subject Person”) exceeds the designated percentage threshold of the outstanding voting securities as a result of a repurchase or other acquisition of voting securities by the Company reducing the number of shares outstanding, provided that if a Change in Control would occur (but for the operation of this sentence) as a result of the acquisition of voting securities by the Company, and after such share acquisition, the Subject Person becomes the Owner of any additional voting securities that, assuming the repurchase or other acquisition had not occurred, increases the percentage of the then outstanding voting securities Owned by the Subject Person over the designated percentage threshold, then a Change in Control will be deemed to occur;

(ii) there is consummated a merger, consolidation or similar transaction involving (directly or indirectly) the Company and, immediately after the consummation of such merger, consolidation or similar transaction, the stockholders of the Company immediately prior thereto do not Own, directly or indirectly, either (A) outstanding voting securities representing more than 50% of the combined outstanding voting power of the surviving Entity in such merger, consolidation or similar transaction or (B) more than 50% of the combined outstanding voting power of the parent of the surviving Entity in such merger, consolidation or similar transaction, in each case in substantially the same proportions as their Ownership of the outstanding voting securities of the Company immediately prior to such transaction; or

(iii) there is consummated a sale, lease, exclusive license or other disposition of all or substantially all of the consolidated assets of the Company and its Subsidiaries, other than a sale, lease, license or other disposition of all or substantially all of the consolidated assets of the Company and its Subsidiaries to an Entity, more than 50% of the combined voting power of the voting securities of which are Owned by stockholders of the Company in substantially the same proportions as their Ownership of the outstanding voting securities of the Company immediately prior to such sale, lease, license or other disposition.

Notwithstanding the foregoing definition or any other provision of this Plan, (A) the term Change in Control will not include a sale of assets, merger or other transaction effected exclusively for the purpose of changing the domicile of the Company, (B) the definition of Change in Control (or any analogous term) in an individual written agreement between the Company or any Affiliate and the Participant will supersede the foregoing definition with respect to Stock Awards subject to such agreement; *provided, however*, that if no definition of Change in Control or any analogous term is set forth in such an individual written agreement, the definition set forth herein will apply, and (C) if at any time the Company's Certificate of Incorporation provides definitions of various analogous transactions that would be deemed a liquidation event for the Company, then such definition will apply as if it were the definition set forth herein except as is otherwise expressly provided in an individual written agreement between the Company or any Affiliate and the Participant.

(f) "**Code**" means the Internal Revenue Code of 1986, as amended, including any applicable regulations and guidance thereunder.

(g) "**Committee**" means a committee of one or more Directors to whom authority has been delegated by the Board in accordance with Section 2(c).

(h) "**Common Stock**" means the common stock of the Company.

(i) "**Company**" means Longboard Pharmaceuticals, Inc., a Delaware corporation.

(j) "**Consultant**" means any person, including an advisor, who is (i) engaged by the Company or an Affiliate to render consulting or advisory services and is compensated for such services, or (ii) serving as a member of the board of directors of an Affiliate and is compensated for such services. However, service solely as a Director, or payment of a fee for such service, will not cause a Director to be considered a "Consultant" for purposes of the Plan.

(k) "**Continuous Service**" means that the Participant's service with the Company or an Affiliate, whether as an Employee, Director or Consultant, is not interrupted or terminated. A change in the capacity in which the Participant renders service to the Company or an Affiliate as an Employee, Director or Consultant or a change in the Entity for which the Participant renders such service, provided that there is no interruption or termination of the Participant's service with the Company or an Affiliate, will not terminate a Participant's Continuous Service; *provided, however*, that if the Entity for which a Participant is rendering services ceases to qualify as an Affiliate, as determined by the Board in its sole discretion, such Participant's Continuous Service will be considered to have terminated on the date such Entity ceases to qualify as an Affiliate. For example, a change in status from an Employee of the Company to a Consultant of an Affiliate or to a Director will not constitute an interruption of Continuous Service. To the extent permitted by law, the Board or the chief executive officer of the Company, in that party's sole discretion, may determine whether Continuous Service will be considered interrupted in the case of (i) any leave of absence approved by the Board or chief executive officer, including sick leave,

military leave or any other personal leave, or (ii) transfers between the Company, an Affiliate, or their successors. Notwithstanding the foregoing, a leave of absence will be treated as Continuous Service for purposes of vesting in a Stock Award only to such extent as may be provided in the Company's leave of absence policy, in the written terms of any leave of absence agreement or policy applicable to the Participant, or as otherwise required by law.

(l) **"Corporate Transaction"** means the consummation, in a single transaction or in a series of related transactions, of any one or more of the following events:

(i) a sale or other disposition of all or substantially all, as determined by the Board in its sole discretion, of the consolidated assets of the Company and its Subsidiaries;

(ii) a sale or other disposition of more than 50% of the outstanding securities of the Company;

(iii) a merger, consolidation or similar transaction following which the Company is not the surviving corporation; or

(iv) a merger, consolidation or similar transaction following which the Company is the surviving corporation but the shares of Common Stock outstanding immediately preceding the merger, consolidation or similar transaction are converted or exchanged by virtue of the merger, consolidation or similar transaction into other property, whether in the form of securities, cash or otherwise.

(m) **"Director"** means a member of the Board.

(n) **"Disability"** means, with respect to a Participant, the inability of such Participant to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment that can be expected to result in death or that has lasted or can be expected to last for a continuous period of not less than twelve (12) months as provided in Sections 22(e)(3) and 409A(a)(2)(c)(i) of the Code, and will be determined by the Board on the basis of such medical evidence as the Board deems warranted under the circumstances.

(o) **"Effective Date"** means the effective date of this Plan, which is the earlier of (i) the date that this Plan is first approved by the Company's stockholders, and (ii) the date this Plan is adopted by the Board.

(p) **"Employee"** means any person employed by the Company or an Affiliate. However, service solely as a Director, or payment of a fee for such services, will not cause a Director to be considered an "Employee" for purposes of the Plan.

(q) **"Entity"** means a corporation, partnership, limited liability company or other entity.

(r) **"Exchange Act"** means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

(s) **"Exchange Act Person"** means any natural person, Entity or "group" (within the meaning of Section 13(d) or 14(d) of the Exchange Act), except that "Exchange Act Person" will not include (i) the Company or any Subsidiary of the Company, (ii) any employee benefit plan of the Company or any Subsidiary of the Company or any trustee or other fiduciary holding securities under an

employee benefit plan of the Company or any Subsidiary of the Company, (iii) an underwriter temporarily holding securities pursuant to a registered public offering of such securities, (iv) an Entity Owned, directly or indirectly, by the stockholders of the Company in substantially the same proportions as their Ownership of stock of the Company; or (v) any natural person, Entity or “group” (within the meaning of Section 13(d) or 14(d) of the Exchange Act) that, as of the Effective Date, is the Owner, directly or indirectly, of securities of the Company representing more than 50% of the combined voting power of the Company’s then outstanding securities.

(t) “**Fair Market Value**” means, as of any date, the value of the Common Stock determined by the Board in compliance with Section 409A of the Code or, in the case of an Incentive Stock Option, in compliance with Section 422 of the Code.

(u) “**Good Reason**” will have the meaning ascribed to such term in any written agreement between the Participant and the Company defining such term and, in the absence of such agreement, such term means, with respect to a Participant, a material and unreasonable diminution of such Participant’s duties (as determined by the Board in its sole discretion) without such Participant’s consent; provided, however, that the following shall not constitute Good Reason: (i) a change of title; (ii) a reduction in such Participant’s duties by virtue of the Company undergoing a Change in Control and/or being made part of a larger entity or group of entities; and/or (iii) cessation of such Participant’s service, if any, on the Board or a committee thereof. For such Participant to receive the benefits under the applicable written agreement between such Participant and the Company as a result of a voluntary resignation for Good Reason, unless otherwise provided in such agreement, all of the following requirements must be satisfied: (A) such Participant must provide notice to the Company of such Participant’s intent to assert Good Reason within thirty (30) days of the initial existence of the condition set forth in the previous sentence; (B) the Company will have thirty (30) days (the “**Company Cure Period**”) from the date of such notice to remedy the condition and, if it does so, such Participant may withdraw such Participant’s resignation or such Participant may resign with no benefits under the applicable written agreement; and (C) any termination of such Participant’s Continuous Service under this provision must occur within ten (10) days of the earlier of expiration of the Company Cure Period or written notice from the Company that it will not undertake to cure the applicable condition. Unless otherwise set forth in the applicable written agreement, should the Company remedy the condition as set forth above and then such condition arises again, such Participant may assert Good Reason again subject to all of the conditions set forth herein. Unless otherwise set forth in the applicable written agreement, the term “Company” for purposes of “Good Reason” will be interpreted to include any Affiliate of the Company to which such Participant provides services, if appropriate, as determined by the Board in its sole discretion.

(v) “**Incentive Stock Option**” means an option granted pursuant to Section 5 of the Plan that is intended to be, and that qualifies as, an “incentive stock option” within the meaning of Section 422 of the Code.

(w) “**Nonstatutory Stock Option**” means an option granted pursuant to Section 5 of the Plan that does not qualify as an Incentive Stock Option.

(x) “**Officer**” means any person designated by the Company as an officer.

(y) “**Option**” means an Incentive Stock Option or a Nonstatutory Stock Option to purchase shares of Common Stock granted pursuant to the Plan.

(z) “**Option Agreement**” means a written agreement between the Company and an Optionholder evidencing the terms and conditions of an Option grant. Each Option Agreement will be subject to the terms and conditions of the Plan.

(aa) “**Optionholder**” means a person to whom an Option is granted pursuant to the Plan or, if applicable, such other person who holds an outstanding Option.

(bb) “**Other Stock Award**” means an award based in whole or in part by reference to the Common Stock which is granted pursuant to the terms and conditions of Section 6(c).

(cc) “**Other Stock Award Agreement**” means a written agreement between the Company and a holder of an Other Stock Award evidencing the terms and conditions of an Other Stock Award grant. Each Other Stock Award Agreement will be subject to the terms and conditions of the Plan.

(dd) “**Own**,” “**Owned**,” “**Owner**,” “**Ownership**” A person or Entity will be deemed to “Own,” to have “Owned,” to be the “Owner” of, or to have acquired “Ownership” of securities if such person or Entity, directly or indirectly, through any contract, arrangement, understanding, relationship or otherwise, has or shares voting power, which includes the power to vote or to direct the voting, with respect to such securities.

(ee) “**Participant**” means a person to whom a Stock Award is granted pursuant to the Plan or, if applicable, such other person who holds an outstanding Stock Award.

(ff) “**Plan**” means this 2020 Equity Incentive Plan.

(gg) “**Restricted Stock Award**” means an award of shares of Common Stock which is granted pursuant to the terms and conditions of Section 6(a).

(hh) “**Restricted Stock Award Agreement**” means a written agreement between the Company and a holder of a Restricted Stock Award evidencing the terms and conditions of a Restricted Stock Award grant. Each Restricted Stock Award Agreement will be subject to the terms and conditions of the Plan.

(ii) “**Restricted Stock Unit Award**” means a right to receive shares of Common Stock which is granted pursuant to the terms and conditions of Section 6(b).

(jj) “**Restricted Stock Unit Award Agreement**” means a written agreement between the Company and a holder of a Restricted Stock Unit Award evidencing the terms and conditions of a Restricted Stock Unit Award grant. Each Restricted Stock Unit Award Agreement will be subject to the terms and conditions of the Plan.

(kk) “**Rule 405**” means Rule 405 promulgated under the Securities Act.

(ll) “**Rule 701**” means Rule 701 promulgated under the Securities Act.

(mm) “**Securities Act**” means the Securities Act of 1933, as amended.

(nn) “**Stock Appreciation Right**” or “**SAR**” means a right to receive the appreciation on Common Stock that is granted pursuant to the terms and conditions of Section 5.

(oo) “**Stock Appreciation Right Agreement**” means a written agreement between the Company and a holder of a Stock Appreciation Right evidencing the terms and conditions of a Stock Appreciation Right grant. Each Stock Appreciation Right Agreement will be subject to the terms and conditions of the Plan.

(pp) “**Stock Award**” means any right to receive Common Stock granted under the Plan, including an Incentive Stock Option, a Nonstatutory Stock Option, a Restricted Stock Award, a Restricted Stock Unit Award, a Stock Appreciation Right or any Other Stock Award.

(qq) “**Stock Award Agreement**” means a written agreement between the Company and a Participant evidencing the terms and conditions of a Stock Award grant. Each Stock Award Agreement will be subject to the terms and conditions of the Plan.

(rr) “**Subsidiary**” means, with respect to the Company, (i) any corporation of which more than 50% of the outstanding capital stock having ordinary voting power to elect a majority of the board of directors of such corporation (irrespective of whether, at the time, stock of any other class or classes of such corporation will have or might have voting power by reason of the happening of any contingency) is at the time, directly or indirectly, Owned by the Company, and (ii) any partnership, limited liability company or other entity in which the Company has a direct or indirect interest (whether in the form of voting or participation in profits or capital contribution) of more than 50%.

(ss) “**Ten Percent Stockholder**” means a person who Owns (or is deemed to Own pursuant to Section 424(d) of the Code) stock possessing more than 10% of the total combined voting power of all classes of stock of the Company or any Affiliate.

LONGBOARD PHARMACEUTICALS, INC.

**STOCK OPTION GRANT NOTICE
(2020 EQUITY INCENTIVE PLAN)**

Longboard Pharmaceuticals, Inc. (the “*Company*”), pursuant to its 2020 Equity Incentive Plan (as amended and/or restated as of the Date of Grant set forth below, the “*Plan*”), has granted to Optionholder an option to purchase the number of shares of the Common Stock set forth below (the “*Option*”). The Option is subject to all of the terms and conditions as set forth in this Stock Option Grant Notice (the “*Grant Notice*”) and in the Plan, the Option Agreement, and the Notice of Exercise, all of which are attached to this Grant Notice and incorporated into this Grant Notice in their entirety. Capitalized terms not explicitly defined in this Grant Notice but defined in the Plan or the Option Agreement shall have the meanings set forth in the Plan or the Option Agreement, as applicable. If the Company uses an electronic capitalization table system (such as Carta or Shareworks) and the fields below are blank or the information is otherwise provided in a different format electronically, the blank fields and other information (such as exercise schedule and type of grant) shall be deemed to come from the electronic capitalization system and is considered part of this Grant Notice.

Optionholder:	_____
Date of Grant:	_____
Vesting Commencement Date:	_____
Number of Shares Subject to Option:	_____
Exercise Price (Per Share) ¹ :	_____
Total Exercise Price:	_____
Expiration Date:	_____
Exercise Schedule:	[Same as Vesting Schedule] [Early Exercise Permitted]
Type of Grant ² :	[Incentive Stock Option] [Nonstatutory Stock Option]

Vesting Schedule: [Sample of standard vesting. 12/48ths of the total shares will vest on the one-year anniversary of the Vesting Commencement Date, and 1/48th of the total shares will vest each month thereafter on the same day of the month as the Vesting Commencement Date (or if there is no corresponding day, on the last day of the month), subject to Optionholder’s Continuous Service as of each such date.]

¹ The exercise price may be paid by one or a combination of the methods permitted in the Option Agreement.

² If this is an Incentive Stock Option, it (plus other outstanding Incentive Stock Options) cannot be first *exercisable* for more than \$100,000 in value (measured by exercise price) in any calendar year. Any excess over \$100,000 is a Nonstatutory Stock Option.

By accepting this Option, Optionholder consents to receive this Grant Notice, the Option Agreement, the Plan, and any other Plan-related documents by electronic delivery and to participate in the Plan through an on-line or electronic system established and maintained by the Company or another third party designated by the Company. Optionholder represents that he or she has read and is familiar with the provisions of the Plan and the Option Agreement. Optionholder acknowledges and agrees that this Grant Notice and the Option Agreement may not be modified, amended or revised except in writing signed by Optionholder and a duly authorized officer of the Company.

Optionholder further acknowledges that in the event of any conflict between the provisions in this Grant Notice, the Option Agreement, the Notice of Exercise and the terms of the Plan, the terms of the Plan shall control. Optionholder further acknowledges that the Option Agreement sets forth the entire understanding between Optionholder and the Company regarding the acquisition of Common Stock and supersedes all prior oral and written agreements, promises and/or representations on that subject with the exception of other equity awards previously granted to Optionholder and any written employment agreement, offer letter, severance agreement, written severance plan or policy, or other written agreement between the Company and Optionholder in each case that specifies the terms that should govern this Option.

Optionholder further acknowledges that this Grant Notice has been prepared on behalf of the Company by Cooley LLP, counsel to the Company and that Cooley LLP does not represent, and is not acting on behalf of, Optionholder in any capacity. Optionholder has been provided with an opportunity to consult with Optionholder's own counsel with respect to this Grant Notice.

This Grant Notice may be executed in one or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Counterparts may be delivered via facsimile, electronic mail (including pdf or any electronic signature complying with the U.S. federal ESIGN Act of 2000, Uniform Electronic Transactions Act or other applicable law) or other transmission method and any counterpart so delivered will be deemed to have been duly and validly delivered and be valid and effective for all purposes.

By: _____
(Signature)
Title: _____
Date: _____

By: _____
(Signature)

Email: _____

Date: _____

Attachments: Option Agreement, 2020 Equity Incentive Plan and Notice of Exercise

ATTACHMENT I

OPTION AGREEMENT

2020 Equity Incentive Plan

OPTION AGREEMENT
(INCENTIVE STOCK OPTION OR NONSTATUTORY STOCK OPTION)

Pursuant to your Stock Option Grant Notice (“**Grant Notice**”) and this Option Agreement, **Longboard Pharmaceuticals, Inc.** (the “**Company**”) has granted you an option under its 2020 Equity Incentive Plan (the “**Plan**”) to purchase the number of shares of the Company’s Common Stock indicated in your Grant Notice at the exercise price indicated in your Grant Notice. The option is granted to you effective as of the date of grant set forth in the Grant Notice (the “**Date of Grant**”). If there is any conflict between the terms in this Option Agreement and the Plan, the terms of the Plan will control. Capitalized terms not explicitly defined in this Option Agreement or in the Grant Notice but defined in the Plan will have the same definitions as in the Plan.

The details of your option, in addition to those set forth in the Grant Notice and the Plan, are as follows:

1. **Vesting.** Your option will vest as provided in your Grant Notice. Vesting will cease upon the termination of your Continuous Service.
2. **Number of Shares and Exercise Price.** The number of shares of Common Stock subject to your option and your exercise price per share in your Grant Notice will be adjusted for Capitalization Adjustments.
3. **Exercise Restriction for Non-Exempt Employees.** If you are an Employee eligible for overtime compensation under the Fair Labor Standards Act of 1938, as amended (that is, a “**Non-Exempt Employee**”), and except as otherwise provided in the Plan, you may not exercise your option until you have completed at least six months of Continuous Service measured from the Date of Grant, even if you have already been an employee for more than six months. Consistent with the provisions of the Worker Economic Opportunity Act, you may exercise your option as to any vested portion prior to such six month anniversary in the case of (i) your death or disability, (ii) a Corporate Transaction in which your option is not assumed, continued or substituted, (iii) a Change in Control or (iv) your termination of Continuous Service on your “retirement” (as defined in the Company’s benefit plans).
4. **Exercise prior to Vesting (“Early Exercise”).** If permitted in your Grant Notice (*i.e.*, the “Exercise Schedule” indicates “Early Exercise Permitted”) and subject to the provisions of your option, you may elect at any time that is both (i) during the period of your Continuous Service and (ii) during the term of your option, to exercise all or part of your option, including the unvested portion of your option; *provided, however*, that:
 - (a) a partial exercise of your option will be deemed to cover first vested shares of Common Stock and then the earliest vesting installment of unvested shares of Common Stock;
 - (b) any shares of Common Stock so purchased from installments that have not vested as of the date of exercise will be subject to the purchase option in favor of the Company as described in the Company’s form of Early Exercise Stock Purchase Agreement;

(c) you will enter into the Company's form of Early Exercise Stock Purchase Agreement with a vesting schedule that will result in the same vesting as if no early exercise had occurred; and

(d) if your option is an Incentive Stock Option, then, to the extent that the aggregate Fair Market Value (determined at the Date of Grant) of the shares of Common Stock with respect to which your option plus all other Incentive Stock Options you hold are exercisable for the first time by you during any calendar year (under all plans of the Company and its Affiliates) exceeds \$100,000, your option(s) or portions thereof that exceed such limit (according to the order in which they were granted) will be treated as Nonstatutory Stock Options.

5. Method of Payment. You must pay the full amount of the exercise price for the shares you wish to exercise. The permitted methods of payment are as follows:

(a) by cash, check, bank draft, electronic funds transfer or money order payable to the Company;

(b) subject to Company and/or Board consent at the time of exercise and provided that at the time of exercise the Common Stock is publicly traded, pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board that, prior to the issuance of Common Stock, results in either the receipt of cash (or check) by the Company or the receipt of irrevocable instructions to pay the aggregate exercise price to the Company from the sales proceeds. This manner of payment is also known as a "broker-assisted exercise", "same day sale", or "sell to cover";

(c) subject to Company and/or Board consent at the time of exercise and provided that at the time of exercise the Common Stock is publicly traded, by delivery to the Company (either by actual delivery or attestation) of already-owned shares of Common Stock that are owned free and clear of any liens, claims, encumbrances or security interests, and that are valued at Fair Market Value on the date of exercise. "Delivery" for these purposes, in the sole discretion of the Company at the time you exercise your option, will include delivery to the Company of your attestation of ownership of such shares of Common Stock in a form approved by the Company. You may not exercise your option by delivery to the Company of Common Stock if doing so would violate the provisions of any law, regulation or agreement restricting the redemption of the Company's stock;

(d) subject to Company and/or Board consent at the time of exercise, and provided that the Option is a Nonstatutory Stock Option, by a "net exercise" arrangement pursuant to which the Company will reduce the number of shares of Common Stock issued upon exercise of the Option by the largest whole number of shares with a Fair Market Value that does not exceed the aggregate exercise price plus, to the extent permitted by the Company and/or Board at the time of exercise, the aggregate withholding obligations in respect of the Option exercise; provided, further that you must pay any remaining balance of the aggregate exercise price not satisfied by the "net exercise" in cash or other permitted form of payment. Shares of Common Stock will no longer be subject to the Option and will not be exercisable thereafter to the extent that (A) shares issuable upon exercise are used to pay the exercise price pursuant to the "net exercise," (B) shares are delivered to you as a result of such exercise, and (C) shares are withheld to satisfy tax withholding obligations;

(e) subject to the consent of the Company and/or Board at the time of exercise, according to a deferred payment or similar arrangement with you; *provided, however*, that interest will compound at least annually and will be charged at the minimum rate of interest necessary to avoid (A) the imputation of interest income to the Company and compensation income to the Optionholder under any applicable provisions of the Code, and (B) the classification of the Option as a liability for financial accounting purposes; or

(f) in any other form of legal consideration that may be acceptable to the Board.

6. Whole Shares. You may exercise your option only for whole shares of Common Stock.

7. Securities Law Compliance. In no event may you exercise your option unless the shares of Common Stock issuable upon exercise are then registered under the Securities Act or, if not registered, the Company has determined that your exercise and the issuance of the shares would be exempt from the registration requirements of the Securities Act. The exercise of your option also must comply with all other applicable laws and regulations governing your option, and you may not exercise your option if the Company determines that such exercise would not be in material compliance with such laws and regulations (including any restrictions on exercise required for compliance with Treas. Reg. 1.401(k)-1(d)(3), if applicable).

8. Term. You may not exercise your option before the Date of Grant or after the expiration of the option's term. Except as set forth in your Grant Notice, the term of your option expires, subject to the provisions of Section 5(h) of the Plan, upon the earliest of the following:

(a) immediately upon the termination of your Continuous Service for Cause;

(b) three months after the termination of your Continuous Service for any reason other than Cause, your Disability or your death (except as otherwise provided in Section 8(d) below); *provided, however*, that if during any part of such three month period your option is not exercisable solely because of the condition set forth in the section above relating to "Securities Law Compliance," your option will not expire until the earlier of the Expiration Date or until it has been exercisable for an aggregate period of three months after the termination of your Continuous Service; *provided further*, that if (i) you are a Non-Exempt Employee, (ii) your Continuous Service terminates within six months after the Date of Grant, and (iii) you have vested in a portion of your option at the time of your termination of Continuous Service, your option will not expire until the earlier of (x) the later of (A) the date that is seven months after the Date of Grant, and (B) the date that is three months after the termination of your Continuous Service, and (y) the Expiration Date;

(c) 12 months after the termination of your Continuous Service due to your Disability (except as otherwise provided in Section 8(d) below;

(d) 18 months after your death if you die either during your Continuous Service or within three (3) months after your Continuous Service terminates for any reason other than Cause;

(e) the Expiration Date indicated in your Grant Notice; or

(f) the day before the 10th anniversary of the Date of Grant.

If your option is an Incentive Stock Option, note that to obtain the federal income tax advantages associated with an Incentive Stock Option, the Code requires that at all times beginning on the Date of Grant and ending on the day three months before the date of your option's exercise, you must be an employee of the Company or an Affiliate, except in the event of your death or Disability. The Company has provided for extended exercisability of your option under certain circumstances for your benefit but cannot guarantee that your option will necessarily be treated as an Incentive Stock Option if you continue to provide services to the Company or an Affiliate as a Consultant or Director after your employment terminates or if you otherwise exercise your option more than three months after the date your employment with the Company or an Affiliate terminates.

9. Exercise.

(a) You may exercise the vested portion of your option (and the unvested portion of your option if your Grant Notice so permits) during its term by delivering a Notice of Exercise (in a form designated by the Company) together with the exercise price to the Secretary of the Company, or to such other person as the Company may designate, during regular business hours. If required by the Company, your exercise may be made contingent on your execution of any additional documents specified by the Company (including, without limitation, any voting agreement or other agreement between the Company and some or all of its stockholders).

(b) By exercising your option you agree that, as a condition to any exercise of your option, the Company may require you to enter into an arrangement providing for the payment by you to the Company of any tax withholding obligation of the Company arising by reason of (i) the exercise of your option, (ii) the lapse of any substantial risk of forfeiture to which the shares of Common Stock are subject at the time of exercise, or (iii) the disposition of shares of Common Stock acquired upon such exercise.

(c) If your option is an Incentive Stock Option, by exercising your option you agree that you will notify the Company in writing within 15 days after the date of any disposition of any of the shares of the Common Stock issued upon exercise of your option that occurs within two years after the Date of Grant or within one year after such shares of Common Stock are transferred upon exercise of your option.

(d) By exercising your option you agree that you will not sell, dispose of, transfer, make any short sale of, grant any option for the purchase of, or enter into any hedging or similar transaction with the same economic effect as a sale with respect to any shares of Common Stock or other securities of the Company held by you, for a period of 180 days following the effective date of a registration statement of the Company filed under the Securities Act or such longer period as the underwriters or the Company will request to facilitate compliance with applicable FINRA rules (the “**Lock-Up Period**”); *provided, however*, that nothing contained in this section will prevent the exercise of a repurchase option, if any, in favor of the Company during the Lock-Up Period. You further agree to execute and deliver such other agreements as may be reasonably requested by the Company or the underwriters that are consistent with the foregoing or that are necessary to give further effect thereto. In order to enforce the foregoing covenant, the Company may impose stop-transfer instructions with respect to your shares of Common Stock until the end of such period. You also agree that any transferee of any shares of Common Stock (or other securities) of the Company held by you will be bound by this Section 9(d). The underwriters of the Company’s stock are intended third party beneficiaries of this Section 9(d) and will have the right, power and authority to enforce the provisions hereof as though they were a party hereto. You further agree that the obligations contained in this Section 9(d) shall also, if so determined by the Company’s Board of Directors, apply in the Company’s initial listing of its Common Stock on a national securities exchange by means of a registration statement on Form S-1 under the Securities Act (or any successor registration form under the Securities Act subsequently adopted by the Securities and Exchange Commission) filed by the Company with the Securities and Exchange Commission that registers shares of existing capital stock of the Company for resale (a “**Direct Listing**”), provided that all holders of at least 5% of the Company’s outstanding Common Stock (after giving effect to the conversion into Common Stock of any outstanding Preferred Stock of the Company) are subject to substantially similar obligations with respect to such Direct Listing.

10. Transferability. Except as otherwise provided in this Section 10, your option is not transferable, except by will or by the laws of descent and distribution, and is exercisable during your life only by you.

(a) **Certain Trusts.** Upon receiving written permission from the Board or its duly authorized designee, you may transfer your option to a trust if you are considered to be the sole beneficial owner (determined under Section 671 of the Code and applicable state law) while the option is held in the trust. You and the trustee must enter into transfer and other agreements required by the Company.

(b) **Domestic Relations Orders.** Upon receiving written permission from the Board or its duly authorized designee, and provided that you and the designated transferee enter into transfer and other agreements required by the Company, you may transfer your option pursuant to the terms of a domestic relations order, official marital settlement agreement or other divorce or separation instrument as permitted by Treasury Regulation 1.421-1(b)(2) that contains the information required by the Company to effectuate the transfer. You are encouraged to discuss the proposed terms of any division of this option with the Company prior to finalizing the domestic relations order or marital settlement agreement to help ensure the required information is contained within the domestic relations order or marital settlement agreement. If this option is an Incentive Stock Option, this option may be deemed to be a Nonstatutory Stock Option as a result of such transfer.

(c) **Beneficiary Designation.** Upon receiving written permission from the Board or its duly authorized designee, you may, by delivering written notice to the Company, in a form approved by the Company and any broker designated by the Company to handle option exercises, designate a third party who, on your death, will thereafter be entitled to exercise this option and receive the Common Stock or other consideration resulting from such exercise. In the absence of such a designation, your executor or administrator of your estate will be entitled to exercise this option and receive, on behalf of your estate, the Common Stock or other consideration resulting from such exercise.

11. Option not a Service Contract. Your option is not an employment or service contract, and nothing in your option will be deemed to create in any way whatsoever any obligation on your part to continue in the employ of the Company or an Affiliate, or of the Company or an Affiliate to continue your employment. In addition, nothing in your option will obligate the Company or an Affiliate, their respective stockholders, boards of directors, officers or employees to continue any relationship that you might have as a Director or Consultant for the Company or an Affiliate.

12. Withholding Obligations.

(a) At the time you exercise your option, in whole or in part, and at any time thereafter as requested by the Company, you hereby authorize withholding from payroll and any other amounts payable to you, and otherwise agree to make adequate provision for (including by means of a "same day sale" pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board to the extent permitted by the Company), any sums required to satisfy the federal, state, local and foreign tax withholding obligations of the Company or an Affiliate, if any, which arise in connection with the exercise of your option.

(b) If this option is a Nonstatutory Stock Option, then upon your request and subject to approval by the Company, and compliance with any applicable legal conditions or restrictions, the Company may withhold from fully vested shares of Common Stock otherwise issuable to you upon the exercise of your option a number of whole shares of Common Stock having a Fair Market Value, determined by the Company as of the date of exercise, not in excess of the minimum amount of tax

required to be withheld by law (or such lower amount as may be necessary to avoid classification of your option as a liability for financial accounting purposes). If the date of determination of any tax withholding obligation is deferred to a date later than the date of exercise of your option, share withholding pursuant to the preceding sentence will not be permitted unless you make a proper and timely election under Section 83(b) of the Code, covering the aggregate number of shares of Common Stock acquired upon such exercise with respect to which such determination is otherwise deferred, to accelerate the determination of such tax withholding obligation to the date of exercise of your option. Notwithstanding the filing of such election, shares of Common Stock will be withheld solely from fully vested shares of Common Stock determined as of the date of exercise of your option that are otherwise issuable to you upon such exercise. Any adverse consequences to you arising in connection with such share withholding procedure will be your sole responsibility.

(c) You may not exercise your option unless the tax withholding obligations of the Company and/or any Affiliate are satisfied. Accordingly, you may not be able to exercise your option when desired even though your option is vested, and the Company will have no obligation to issue a certificate for such shares of Common Stock or release such shares of Common Stock from any escrow provided for herein, if applicable, unless such obligations are satisfied.

13. Tax Consequences. You hereby agree that the Company does not have a duty to design or administer the Plan or its other compensation programs in a manner that minimizes your tax liabilities. You will not make any claim against the Company, or any of its Officers, Directors, Employees or Affiliates related to tax liabilities arising from your option or your other compensation. In particular, you acknowledge that this option is exempt from Section 409A of the Code only if the exercise price per share specified in the Grant Notice is at least equal to the “fair market value” per share of the Common Stock on the Date of Grant and there is no other impermissible deferral of compensation associated with the option. Because the Common Stock is not traded on an established securities market, the Fair Market Value is determined by the Board, perhaps in consultation with an independent valuation firm retained by the Company. You acknowledge that there is no guarantee that the Internal Revenue Service will agree with the valuation as determined by the Board, and you will not make any claim against the Company, or any of its Officers, Directors, Employees or Affiliates in the event that the Internal Revenue Service asserts that the valuation determined by the Board is less than the “fair market value” as subsequently determined by the Internal Revenue Service.

14. Notices. Any notices provided for in your option or the Plan will be given in writing (including electronically) and will be deemed effectively given upon receipt or, in the case of notices delivered by mail by the Company to you, five days after deposit in the United States mail, postage prepaid, addressed to you at the last address you provided to the Company. The Company may, in its sole discretion, decide to deliver any documents related to participation in the Plan and this option by electronic means or to request your consent to participate in the Plan by electronic means. By accepting this option, you consent to receive such documents by electronic delivery and to participate in the Plan through an on-line or electronic system established and maintained by the Company or another third party designated by the Company.

15. Governing Plan Document. Your option is subject to all the provisions of the Plan, the provisions of which are hereby made a part of your option, and is further subject to all interpretations, amendments, rules and regulations, which may from time to time be promulgated and adopted pursuant to the Plan. If there is any conflict between the provisions of your option and those of the Plan, the provisions of the Plan will control.

ATTACHMENT II

2020 Equity Incentive Plan

ATTACHMENT III

NOTICE OF EXERCISE

LONGBOARD PHARMACEUTICALS, INC.
NOTICE OF EXERCISE

This constitutes notice to **Longboard Pharmaceuticals, Inc.** (the “*Company*”) under my stock option that I elect to purchase the below number of shares of Common Stock of the Company (the “*Shares*”) for the price set forth below. Use of certain payment methods is subject to Company and/or Board consent and certain additional requirements set forth in the Option Agreement and the Plan. If the Company uses an electronic capitalization table system (such as Carta or Shareworks) and the fields below are blank, the blank fields shall be deemed to come from the electronic capitalization system and is considered part of this Notice of Exercise.

Option Information

Type of option (check one):	Incentive <input type="checkbox"/> Nonstatutory <input type="checkbox"/>
Stock option dated:	_____
Number of Shares as to which option is exercised:	_____
Certificates to be issued in name of: ³	_____

Exercise Information

Date of Exercise:	_____
Total exercise price:	_____
Cash: ⁴	_____
Regulation T Program (cashless exercise): ⁵	_____
Value of _____ Shares delivered with this notice: ⁶	_____
Value of _____ Shares pursuant to net exercise: ⁷	_____

By this exercise, I agree (i) to provide such additional documents as you may require pursuant to the terms of the 2020 Equity Incentive Plan, (ii) to provide for the payment by me to you (in the manner designated by you) of your withholding obligation, if any, relating to the exercise of this option, and (iii) if this exercise relates to an incentive stock option, to notify you in writing within 15 days after the date of any disposition of any of the Shares issued upon exercise of this option that occurs within two years after the date of grant of this option or within one year after such Shares are issued upon exercise of this option. I further agree that this Notice of Exercise may be delivered via facsimile, electronic mail (including pdf or any electronic signature complying with the U.S. federal ESIGN Act of 2000, Uniform Electronic Transactions Act or other applicable law) or other transmission method and will be deemed to have been duly and validly delivered and be valid and effective for all purposes.

I hereby make the following certifications and representations with respect to the number of Shares listed above, which are being acquired by me for my own account upon exercise of the option as set forth above:

I acknowledge that the Shares have not been registered under the Securities Act of 1933, as amended (the “*Securities Act*”), and are deemed to constitute “restricted securities” under Rule 701 and Rule 144 promulgated under the Securities Act. I warrant and represent to the Company that I have no present intention of distributing or selling said Shares, except as permitted under the Securities Act and any applicable state securities laws.

³ If left blank, will be issued in the name of the option holder.

⁴ Cash may be in the form of cash, check, bank draft, electronic funds transfer or money order payment.

⁵ Subject to Company and/or Board consent and must meet the public trading and other requirements set forth in the Option Agreement.

⁶ Subject to Company and/or Board consent and must meet the public trading and other requirements set forth in the Option Agreement. Shares must be valued in accordance with the terms of the option being exercised, and must be owned free and clear of any liens, claims, encumbrances or security interests. Certificates must be endorsed or accompanied by an executed assignment separate from certificate.

⁷ Subject to Company and/or Board consent and must be a Nonstatutory Option.

I further acknowledge and agree that, except for such information as required to be delivered to me by the Company pursuant to the option or the Plan (if any), I will have no right to receive any information from the Company by virtue of the grant of the option or the purchase of shares of Common Stock through exercise of the option, ownership of such shares of Common Stock, or as a result of my being a holder of record of stock of the Company. Without limiting the foregoing, to the fullest extent permitted by law, I hereby waive all inspection rights under Section 220 of the Delaware General Corporation Law and all such similar information and/or inspection rights that may be provided under the law of any jurisdiction, or any federal, state or foreign regulation, that are, or may become, applicable to the Company or the Company’s capital stock (the “**Inspection Rights**”). I hereby covenant and agree never to directly or indirectly commence, voluntarily aid in any way, prosecute, assign, transfer, or cause to be commenced any claim, action, cause of action, or other proceeding to pursue or exercise the Inspection Rights.

I further acknowledge that I will not be able to resell the Shares for at least 90 days after the stock of the Company becomes publicly traded (*i.e.*, subject to the reporting requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934) under Rule 701 and that more restrictive conditions apply to affiliates of the Company under Rule 144.

I further acknowledge that all certificates representing any of the Shares subject to the provisions of the option will have endorsed thereon appropriate legends reflecting the foregoing limitations, as well as any legends reflecting restrictions pursuant to the Company’s Certificate of Incorporation, Bylaws and/or applicable securities laws.

I further agree that, if required by the Company (or a representative of the underwriters) in connection with the first underwritten registration of the offering of any securities of the Company under the Securities Act, I will not sell, dispose of, transfer, make any short sale of, grant any option for the purchase of, or enter into any hedging or similar transaction with the same economic effect as a sale with respect to any shares of Common Stock or other securities of the Company for a period of 180 days following the effective date of a registration statement of the Company filed under the Securities Act (or such longer period as the underwriters or the Company will request to facilitate compliance with applicable FINRA rules) (the “**Lock-Up Period**”). I further agree to execute and deliver such other agreements as may be reasonably requested by the Company or the underwriters that are consistent with the foregoing or that are necessary to give further effect thereto. In order to enforce the foregoing covenant, the Company may impose stop-transfer instructions with respect to securities subject to the foregoing restrictions until the end of such period. I further agree that the obligations contained in this paragraph shall also, if so determined by the Company’s Board of Directors, apply in the Company’s initial listing of its Common Stock on a national securities exchange by means of a registration statement on Form S-1 under the Securities Act (or any successor registration form under the Securities Act subsequently adopted by the Securities and Exchange Commission) filed by the Company with the Securities and Exchange Commission that registers shares of existing capital stock of the Company for resale (a “**Direct Listing**”), provided that all holders of at least 5% of the Company’s outstanding Common Stock (after giving effect to the conversion into Common Stock of any outstanding Preferred Stock of the Company) are subject to substantially similar obligations with respect to such Direct Listing.

Very truly yours,

(Signature)

Name (Please Print)

Address of Record:

Email:

Longboard Pharmaceuticals, Inc.

October 27, 2020

Kevin Lind
via email

Re: Offer of Employment

Dear Kevin:

Longboard Pharmaceuticals, Inc. (the “**Company**”) is pleased to confirm the terms of your at-will employment in the position of President and Chief Executive Officer (“**CEO**”) on the terms and conditions set forth in this letter agreement (the “**Agreement**”).

1. Employment by the Company. Your employment with the Company shall commence on October 27, 2020 (the “**Start Date**”). This is an exempt position, and during your employment with the Company, you will devote your best efforts and substantially all of your business time and attention to the business of the Company, except for approved vacation periods and reasonable periods of illness or other incapacities permitted by the Company’s general employment policies. You shall perform such duties as are required by the Company’s Board of Directors (“**Board**”), to whom you will report. Your primary work location shall be the Company’s office located in San Diego, California. The Company reserves the right to reasonably require you to perform your duties at places other than your primary office location from time to time, and to require reasonable business travel. The Company may modify your job title and duties as it deems necessary and appropriate in light of the Company’s needs and interests from time to time.

2. Compensation.

2.1 Base Salary. For services to be rendered hereunder, you shall receive a base salary at the rate of \$440,000 per year (the “**Base Salary**”), subject to standard payroll deductions and withholdings and payable in accordance with the Company’s regular payroll schedule.

2.2 Annual Bonus. You will be eligible for an annual discretionary bonus with a target amount of \$180,000, prorated for the number of days employed in a calendar year (the “**Annual Bonus**”). Whether you receive an Annual Bonus for any given year, and the amount of any such Annual Bonus, will be determined by the Board (and/or its Compensation Committee) in its discretion based upon the achievement of corporate and/or individual objectives and milestones that are determined in the sole discretion of the Board (and/or its Compensation Committee). You must continue to be employed through the date the Annual Bonus is paid in order to earn such bonus. The Annual Bonus, if earned, shall be paid to you in a lump sum no later than March 15th of the calendar year that follows the performance year, subject to applicable payroll deductions and withholdings.

2.3 Equity. Subject to the approval of the Board, the Company will grant you a restricted stock award representing 252,500 shares of the Company’s Common Stock (the “**Initial Grant**”), pursuant to the Company’s 2020 Equity Incentive Plan (as may be amended from time to time, the “**Plan**”), and an option to purchase 252,500 shares of Common Stock, with an exercise price equal to the fair market value on the date of grant as determined by the Board, after it has obtained a 409A

valuation (the “**Additional Grant**”). The shares subject to the Initial Grant will vest over two years, subject to your Continuous Service to the Company (as defined in the Plan), as follows: 50% of the shares shall be fully vested on the first-year anniversary of the date of the grant, and the remaining shares shall vest in twelve (12) equal monthly increments thereafter. The shares subject to the Additional Grant will vest over four years, subject to your Continuous Service to the Company, as follows: 100% of the shares shall vest in twenty four (24) equal monthly increments beginning on the second-year anniversary of the date of grant. The Initial Grant and Additional Grant shall be governed in all respects by the terms of the Plan, the related governing documents, and applicable equity award agreements between you and the Company.

3. Reasonable Business Expenses. You will be eligible for reimbursement of all reasonable, necessary and documented out-of-pocket business, entertainment, and travel expenses incurred by you in connection with the performance of your duties hereunder in accordance with the Company’s expense reimbursement policies and procedures.

4. Company Policies; Standard Company Benefits. The employment relationship between the parties shall be governed by the general employment policies and practices of the Company, except that when the terms of this Agreement differ from or are in conflict with the Company’s general employment policies or practices, this Agreement shall control. You shall be entitled to participate in all employee benefit programs for which you are eligible under the terms and conditions of the benefit plans that may be in effect from time to time and provided by the Company to its employees. The Company reserves the right to cancel or change the benefit plans or programs it offers to its employees at any time.

5. At-Will Employment. Your employment relationship is at-will. Either you or the Company may terminate the employment relationship at any time, with or without cause or advance notice. Upon termination of your employment for any reason, you shall resign from all positions and terminate any relationships as an employee, advisor, officer or director with the Company and any of its affiliates, each effective on the date of termination.

6. Outside Activities During Employment. Except with the prior written consent of the Board, you will not during the term of your employment with the Company undertake or engage in any other employment, occupation or business enterprise, other than ones in which you are a passive investor. You may engage in civic and not-for-profit activities so long as such activities do not materially interfere with the performance of your duties hereunder. You agree not to acquire, assume or participate in, directly or indirectly, any position, investment or interest known to be adverse or antagonistic to the Company, its business or prospects, financial or otherwise.

7. Termination; Severance.

7.1 Term and Termination. The term of this Agreement (the “**Term**”) shall be the period commencing on the Start Date and ending on the date that this Agreement is terminated by either party pursuant to the provisions of this Agreement. You are employed at-will, meaning that, subject to the terms and conditions set forth herein, either the Company or you may terminate your employment at any time, with or without Cause.

7.2 Compensation upon Termination. Upon the termination of your employment for any reason, the Company shall pay you all of your accrued and unpaid wages earned through your last day of employment (the “**Separation Date**”).

7.3 Involuntary Termination Unrelated to a Change in Control. If you are subject to an Involuntary Termination (that does not occur within the Change in Control Period (as defined below)), and provided that you remain in compliance with the terms of this Agreement (including the conditions described in Section 7.6 below), the Company shall provide you with the following benefits (the “**Severance Benefits**”):

(a) **Cash Severance.** The Company shall pay you, as severance, the equivalent of nine (9) months (the “**Severance Period**”) of your Base Salary in effect as of the Separation Date, subject to standard payroll deductions and withholdings (the “**Severance**”). The Severance will be paid as a continuation on the Company’s regular payroll, beginning no later than the first regularly-scheduled payroll date following the sixtieth (60th) day after your Separation from Service, provided the Separation Agreement (as discussed in Section 7.6) has become effective.

(b) **Payment of Continued Group Health Plan Benefits.** If you are eligible for and timely elect continued group health plan coverage under the Consolidated Omnibus Budget Reconciliation Act of 1985 or any state law of similar effect (“**COBRA**”) following your Involuntary Termination, the Company will pay your COBRA group health insurance premiums for you and your eligible dependents directly to the insurer until the earliest of (A) the end of the period immediately following your Involuntary Termination that is equal to the Severance Period (the “**COBRA Payment Period**”), (B) the expiration of your eligibility for continuation coverage under COBRA, or (C) the date when you become eligible for substantially equivalent health insurance coverage in connection with new employment or self-employment. For purposes of this Section, references to COBRA premiums shall not include any amounts payable by you under a Section 125 health care reimbursement plan under the Code. Notwithstanding the foregoing, if at any time the Company determines, in its sole discretion, that it cannot pay the COBRA premiums without potentially incurring financial costs or penalties under applicable law (including, without limitation, Section 2716 of the Public Health Service Act), then regardless of whether you elect continued health coverage under COBRA, and in lieu of providing the COBRA premiums, the Company will instead pay you on the last day of each remaining month of the COBRA Payment Period, a fully taxable cash payment equal to the COBRA premiums for that month, subject to applicable tax withholdings (such amount, the “**Special Severance Payment**”), which payments shall continue until the earlier of expiration of the COBRA Payment Period or the date when you become eligible for substantially equivalent health insurance coverage in connection with new employment or self-employment. On the first payroll date following the effectiveness of the Separation Agreement, the Company will make the first payment to the insurer under this clause (and, in the case of the Special Severance Payment, such payment will be to you, in a lump sum) equal to the aggregate amount of payments that the Company would have paid through such date had such payments instead commenced on the Separation Date, with the balance of the payments paid thereafter on the schedule described above. If you become eligible for coverage under another employer’s group health plan, you must immediately notify the Company of such event, and all payments and obligations under this subsection shall cease.

(c) **Accelerated Vesting.** The vesting and exercisability of all outstanding options, restricted stock unit awards, and other equity awards covering the Company’s common stock that are held by you as of immediately prior to the Involuntary Termination, to the extent such equity awards would otherwise have vested solely conditioned on your continued services with the Company, shall accelerate vesting in accordance with their applicable vesting schedules as if you had completed an additional number of months of service with the Company equal to the Severance Period as of the Separation Date. For the avoidance of doubt, equity awards which vest wholly or partially subject to the attainment of performance goals are not eligible to accelerate vesting pursuant to this subsection.

7.4 Involuntary Termination in Connection with a Change in Control. If you are subject to an Involuntary Termination during the Change in Control Period, and provided that you remain in compliance with the terms of this Agreement (including the conditions described in Section 7.6 below), the Company shall provide you with the Severance Benefits in Section 7.3(a) and 7.3(b), and the vesting and exercisability of all outstanding time-based stock options and other time-based equity awards covering the Company's common stock and restricted stock units that are held by you as of immediately prior to the Separation Date shall accelerate vesting in full effective as of the later of the Separation Date or the effective date of the Change in Control (the "**CIC Acceleration Benefit**"). For the avoidance of doubt, the CIC Acceleration Benefit is conditioned upon the actual consummation of a Change in Control.

7.5 Termination for Cause; Resignation Without Good Reason; Death or Disability. If you resign without Good Reason, or the Company terminates your employment for Cause, upon dissolution or cessation of the Company, or upon your death or disability, then (a) you will no longer vest in any equity awards, (b) all payments of compensation by the Company to you hereunder will terminate immediately (except as to amounts already earned), and (c) you will not be entitled to any Severance Benefits or CIC Acceleration Benefit.

7.6 Conditions to Receipt of Severance Benefits. The receipt of the Severance Benefits and CIC Acceleration Benefit will be subject to you signing and not revoking a separation agreement and general release of claims in a form reasonably satisfactory to the Company (the "**Separation Agreement**") by no later than the sixtieth (60th) day after the Separation Date ("**Release Deadline**"). No Severance Benefits or CIC Acceleration Benefit will be paid or provided until the Separation Agreement becomes effective. You shall also resign from all positions and terminate any relationships as an employee, advisor, officer or director with the Company and any of its affiliates, each effective on the Separation Date.

8. Definitions.

8.1 Cause. For purposes of this Agreement, "**Cause**" for termination means: (a) conviction of, or plea of guilty or nolo contendere to, a felony or any crime involving fraud, dishonesty or moral turpitude; (b) participation in any fraud against the Company; (c) persistent unsatisfactory performance of job duties; (d) material and intentional damage to any property of the Company; (e) willful misconduct, or any violation of Company policy that causes material harm to the Company; (f) breach of this Agreement, the Confidentiality Agreement (as defined below), or any other written agreement with the Company; or (g) conduct by you which in the good faith and reasonable determination of the Board demonstrates gross unfitness to serve. For a termination of employment to be for Cause, you must (a) receive a written notice from the Board which indicates in reasonable detail the facts and circumstances claimed to provide a basis for the termination of your employment for Cause; and (b) be provided with an opportunity to cure or resolve, no later than 30 days following the receipt of such notice, the behavior in question (if deemed curable by the Board in its sole discretion).

8.2 Change in Control. For purposes of this Agreement, a "**Change in Control**" shall have the meaning as set forth in the Plan.

8.3 Change in Control Period. For purposes of this Agreement, the "**Change in Control Period**" means the period commencing three (3) months prior to a Change in Control and ending fourteen (14) months following a Change in Control.

8.4 Code. For purposes of this Agreement, “**Code**” means the U.S. Internal Revenue Code of 1986 (as it has been and may be amended from time to time) and any regulations and guidance that has been promulgated or may be promulgated from time to time thereunder and any state law of similar effect.

8.5 Good Reason. For purposes of this Agreement, you shall have “**Good Reason**” for resignation from employment with the Company if any of the following actions are taken by the Company without your prior written consent: (a) a material reduction in your Base Salary, which the parties agree is a reduction of at least 10% of your Base Salary (unless pursuant to a salary reduction program applicable generally to the Company’s similarly situated employees); (b) a material reduction in your duties (including responsibilities and/or authorities); or (c) relocation of your principal place of employment to a place that increases your one-way commute by more than fifty (50) miles as compared to your then-current principal place of employment immediately prior to such relocation. In order to resign for Good Reason, you must provide written notice to the Company’s Board within 30 days after the first occurrence of the event giving rise to Good Reason setting forth the basis for your resignation, allow the Company at least 30 days from receipt of such written notice to cure such event, and if such event is not reasonably cured within such period, you must resign from all positions you then hold with the Company not later than 90 days after the expiration of the cure period.

8.6 Involuntary Termination. For purposes of this Agreement, “**Involuntary Termination**” means a termination of your employment with the Company pursuant to either (i) a termination initiated by the Company without Cause, or (ii) your resignation for Good Reason, and provided in either case such termination constitutes a Separation from Service. An Involuntary Termination does not include any other termination of your employment, including a termination due to your death or disability.

8.7 Separation from Service. For purposes of this Agreement, “Separation from Service” means a “separation from service”, as defined under Treasury Regulation Section 1.409A-1(h).

9. Proprietary Information Obligations. As a condition of employment, you shall execute and abide by the Company’s standard form of Proprietary Information and Inventions Agreement (the “**Confidentiality Agreement**”), attached as **Exhibit A**. In your work for the Company, you will be expected not to use or disclose any confidential information, including trade secrets, of any former employer or other person to whom you have an obligation of confidentiality. Rather, you will be expected to use only that information which is generally known and used by persons with training and experience comparable to your own, which is common knowledge in the industry or otherwise legally in the public domain, or which is otherwise provided or developed by the Company. You agree that you will not bring onto Company premises any unpublished documents or property belonging to any former employer or other person to whom you have an obligation of confidentiality. You hereby represent that you have disclosed to the Company any contract you have signed that may restrict your activities on behalf of the Company.

10. Section 409A. It is intended that all of the severance benefits and other payments payable under this Agreement satisfy, to the greatest extent possible, the exemptions from the application of Code Section 409A provided under Treasury Regulations Sections 1.409A 1(b)(4), 1.409A 1(b)(5) and 1.409A 1(b)(9), and this Agreement will be construed to the greatest extent possible as consistent with those provisions, and to the extent not so exempt, this Agreement (and any definitions hereunder) will be construed in a manner that complies with Section 409A. For all purposes of Code Section 409A (including, without limitation, for purposes of Treasury Regulations Sections 1.409A 2(b)(2)(i) and (iii)),

your right to receive any installment payments under this Agreement (whether severance payments, reimbursements or otherwise) shall be treated as a right to receive a series of separate payments and, accordingly, each installment payment hereunder shall at all times be considered a separate and distinct payment. Notwithstanding any provision to the contrary in this Agreement, if you are deemed by the Company at the time of your Separation from Service to be a “specified employee” for purposes of Code Section 409A(a)(2)(B)(i), and if any of the payments upon Separation from Service set forth herein and/or under any other agreement with the Company are deemed to be “deferred compensation,” then to the extent delayed commencement of any portion of such payments is required in order to avoid a prohibited distribution under Code Section 409A(a)(2)(B)(i) and the related adverse taxation under Section 409A, such payments shall not be provided to you prior to the earliest of (i) the first date following expiration of the six-month period following the date of your Separation from Service with the Company, (ii) the date of your death or (iii) such earlier date as permitted under Section 409A without the imposition of adverse taxation. Upon the first business day following the expiration of such applicable Code Section 409A(a)(2)(B)(i) period, all payments deferred pursuant to this Paragraph shall be paid in a lump sum to you, and any remaining payments due shall be paid as otherwise provided herein or in the applicable agreement. No interest shall be due on any amounts so deferred. If the severance benefits are not covered by one or more exemptions from the application of Section 409A and the Release Deadline occurs in the calendar year following the calendar year of your Separation from Service, the Separation Agreement will not be deemed effective any earlier than the Release Deadline for purposes of determining the timing of provision of any severance benefits.

11. Section 280G.

If any payment or benefit you will or may receive from the Company or otherwise (a “**280G Payment**”) would (i) constitute a “parachute payment” within the meaning of Section 280G of the Code, and (ii) but for this sentence, be subject to the excise tax imposed by Section 4999 of the Code (the “**Excise Tax**”), then any such 280G Payment pursuant to this Agreement or otherwise (a “**Payment**”) shall be equal to the Reduced Amount. The “**Reduced Amount**” shall be either (x) the largest portion of the Payment that would result in no portion of the Payment (after reduction) being subject to the Excise Tax or (y) the largest portion, up to and including the total, of the Payment, whichever amount (i.e., the amount determined by clause (x) or by clause (y)), after taking into account all applicable federal, state and local employment taxes, income taxes, and the Excise Tax (all computed at the highest applicable marginal rate), results in your receipt, on an after-tax basis, of the greater economic benefit notwithstanding that all or some portion of the Payment may be subject to the Excise Tax. If a reduction in a Payment is required pursuant to the preceding sentence and the Reduced Amount is determined pursuant to clause (x) of the preceding sentence, the reduction shall occur in the manner (the “**Reduction Method**”) that results in the greatest economic benefit for you. If more than one method of reduction will result in the same economic benefit, the items so reduced will be reduced pro rata (the “**Pro Rata Reduction Method**”).

Notwithstanding the foregoing, if the Reduction Method or the Pro Rata Reduction Method would result in any portion of the Payment being subject to taxes pursuant to Section 409A that would not otherwise be subject to taxes pursuant to Section 409A, then the Reduction Method and/or the Pro Rata Reduction Method, as the case may be, shall be modified so as to avoid the imposition of taxes pursuant to Section 409A as follows: (A) as a first priority, the modification shall preserve to the greatest extent possible, the greatest economic benefit for you as determined on an after-tax basis; (B) as a second priority, Payments that are contingent on future events (e.g., being terminated without Cause), shall be reduced (or eliminated) before Payments that are not contingent on future events; and (C) as a third priority, Payments that are “deferred compensation” within the meaning of Section 409A shall be reduced (or eliminated) before Payments that are not deferred compensation within the meaning of Section 409A.

Unless you and the Company agree on an alternative accounting firm, the accounting firm engaged by the Company for general tax compliance purposes as of the day prior to the effective date of the Change in Control transaction triggering the Payment shall perform the foregoing calculations. If the accounting firm so engaged by the Company is serving as accountant or auditor for the individual, entity or group effecting the Change in Control transaction, the Company shall appoint a nationally recognized accounting firm to make the determinations required hereunder. The Company shall bear all expenses with respect to the determinations by such accounting firm required to be made hereunder. The Company shall use commercially reasonable efforts to cause the accounting firm engaged to make the determinations hereunder to provide its calculations, together with detailed supporting documentation, to you and the Company within fifteen (15) calendar days after the date on which your right to a 280G Payment becomes reasonably likely to occur (if requested at that time by you or the Company) or such other reasonable time as requested by you or the Company.

If you receive a Payment for which the Reduced Amount was determined pursuant to clause (x) of the first paragraph of this Section and the Internal Revenue Service determines thereafter that some portion of the Payment is subject to the Excise Tax, you shall promptly return to the Company a sufficient amount of the Payment (after reduction pursuant to clause (x) of the first paragraph of this Section so that no portion of the remaining Payment is subject to the Excise Tax). For the avoidance of doubt, if the Reduced Amount was determined pursuant to clause (y) in the first paragraph of this Section, you shall have no obligation to return any portion of the Payment pursuant to the preceding sentence.

12. Arbitration of All Disputes.

12.1 Agreement to Arbitrate. To ensure the timely and economical resolution of disputes that may arise between you and the Company, both you and the Company mutually agree that pursuant to the Federal Arbitration Act, 9 U.S.C. §1-16, and to the fullest extent permitted by applicable law, you and the Company will submit solely to final, binding and confidential arbitration any and all disputes, claims, or causes of action arising from or relating to: (i) the negotiation, execution, interpretation, performance, breach or enforcement of this Agreement; or (ii) your employment with the Company (including but not limited to all statutory claims); or (iii) the termination of your employment with the Company (including but not limited to all statutory claims). **BY AGREEING TO THIS ARBITRATION PROCEDURE, BOTH YOU AND THE COMPANY WAIVE THE RIGHT TO RESOLVE ANY SUCH DISPUTES THROUGH A TRIAL BY JURY OR JUDGE OR THROUGH AN ADMINISTRATIVE PROCEEDING.**

12.2 Arbitrator Authority. The arbitrator shall have the sole and exclusive authority to determine whether a dispute, claim or cause of action is subject to arbitration under this Section and to determine any procedural questions which grow out of such disputes, claims or causes of action and bear on their final disposition.

12.3 Individual Capacity Only. All claims, disputes, or causes of action under this Section, whether by you or the Company, must be brought solely in an individual capacity, and shall not be brought as a plaintiff (or claimant) or class member in any purported class or representative proceeding, nor joined or consolidated with the claims of any other person or entity. The arbitrator may not consolidate the claims of more than one person or entity, and may not preside over any form of representative or class proceeding. To the extent that the preceding sentences in this Section are found to violate applicable law or are otherwise found unenforceable, any claim(s) alleged or brought on behalf of a class shall proceed in a court of law rather than by arbitration.

12.4 Arbitration Process. Any arbitration proceeding under this Section shall be presided over by a single arbitrator and conducted by Judicial Arbitration and Mediation Services, Inc. (“JAMS”) in San Diego, California, or as otherwise agreed to by you and the Company, under the then applicable JAMS rules for the resolution of employment disputes (available upon request and also currently available at <http://www.jamsadr.com/rules-employment-arbitration/>). You and the Company both have the right to be represented by legal counsel at any arbitration proceeding, at each party’s own expense. The arbitrator shall: (i) have the authority to compel adequate discovery for the resolution of the dispute; (ii) issue a written arbitration decision, to include the arbitrator’s essential findings and conclusions and a statement of the award; and (iii) be authorized to award any or all remedies that you or the Company would be entitled to seek in a court of law. The Company shall pay all JAMS arbitration fees in excess of the amount of court fees that would be required of you if the dispute were decided in a court of law.

12.5 Excluded Claims. This Section shall not apply to any action or claim that cannot be subject to mandatory arbitration as a matter of law, including, without limitation, claims brought pursuant to the California Private Attorneys General Act of 2004, as amended, the California Fair Employment and Housing Act, as amended, and the California Labor Code, as amended, to the extent such claims are not permitted by applicable law to be submitted to mandatory arbitration and such applicable law is not preempted by the Federal Arbitration Act or otherwise invalid (collectively, the “Excluded Claims”). In the event you intend to bring multiple claims, including one of the Excluded Claims listed above, the Excluded Claims may be filed with a court, while any other claims will remain subject to mandatory arbitration.

12.6 Injunctive Relief and Final Orders. Nothing in this Section is intended to prevent either you or the Company from obtaining injunctive relief in court to prevent irreparable harm pending the conclusion of any such arbitration. Any final award in any arbitration proceeding hereunder may be entered as a judgment in the federal and state courts of any competent jurisdiction and enforced accordingly.

13. General Provisions. This Agreement, together with the Confidentiality Agreement, constitutes the entire agreement between you and the Company with regard to this subject matter and is the complete, final, and exclusive embodiment of the parties’ agreement with regard to this subject matter. This Agreement is entered into without reliance on any promise or representation, written or oral, other than those expressly contained herein, and it supersedes any other such promises, warranties or representations. Modifications or amendments to this Agreement, other than those changes expressly reserved to the Company’s discretion in this letter, must be made in a written agreement signed by you and the Company’s Board. Whenever possible, each provision of this Agreement will be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Agreement is held to be invalid, illegal or unenforceable in any respect under any applicable law or rule in any jurisdiction, such invalidity, illegality or unenforceability will not affect any other provision or any other jurisdiction, but this Agreement will be reformed, construed and enforced in such jurisdiction to the extent possible in keeping with the intent of the parties. Any waiver of any breach of any provisions of this Agreement must be in writing to be effective, and it shall not thereby be deemed to have waived any preceding or succeeding breach of the same or any other provision of this Agreement. This Agreement is intended to bind and inure to the benefit of and be enforceable by you and the Company, and their respective successors, assigns, heirs, executors and administrators. The Company may freely assign this

Agreement, without your prior written consent. You may not assign any of your duties hereunder and you may not assign any of your rights hereunder without the written consent of the Company. This Agreement shall become effective as of the Start Date and shall terminate upon your termination of employment with the Company. The obligations as forth under Sections 7, 8, 9, 10, 11, 12, and 13 will survive the termination of this Agreement. All questions concerning the construction, validity and interpretation of this Agreement will be governed by the laws of the State of California.

If you have any questions about this Agreement, please do not hesitate to call me.

Best regards,

LONGBOARD PHARMACEUTICALS, INC.

/s/ Laurie Stelzer

Laurie Stelzer
Director

Accepted and agreed:

/s/ Kevin Lind

Kevin Lind

Date: October 27, 2020

Exhibit A

EMPLOYEE PROPRIETARY INFORMATION AND INVENTIONS AGREEMENT

10.

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

LICENSE AGREEMENT

THIS LICENSE AGREEMENT (the “*Agreement*”) is entered into as of October 27, 2020 (the “*Effective Date*”), by and between **LONGBOARD PHARMACEUTICALS, INC.**, a Delaware corporation (“*Licensee*”), and **ARENA PHARMACEUTICALS INC.**, a Delaware corporation (“*Licensor*”).

RECITALS

WHEREAS, Licensor has rights to certain Licensed Products (defined below) currently being developed for neurological indications in humans;

WHEREAS, Licensee is a new company established to engage in the research, development and commercialization of pharmaceutical products for certain neurological indications in humans; and

WHEREAS, Licensee desires to obtain from Licensor, and Licensor desires to grant to Licensee, an exclusive worldwide license under the applicable Licensed Technology (defined below) to further develop and commercialize Licensed Products in the applicable Field (defined below), subject to the terms and conditions of this Agreement.

NOW, THEREFORE, in consideration of the foregoing premises and the mutual covenants herein contained, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Licensee and Licensor hereby agree as follows:

1. DEFINITIONS

1.1 “2A Compound” shall mean any of the compounds designated on Exhibit 1.1, and any salt, solvate, hydrate, intermediate, pro-drug or metabolite thereof.

1.2 “2A Field” shall mean all therapeutic, prophylactic, and diagnostic uses for any CNS Indication.

1.3 “2A Know-How” shall mean all Information that is specific to any 2A Compound (including data from preclinical studies of 2A Product), which Information is Controlled by Licensor or any of its Current Affiliates as of the Effective Date or during the Term and is necessary or reasonably useful to develop, have developed, make, have made, use, sell, have sold, offer for sale and import any 2A Compound or 2A Product in the 2A Field.

1.4 “2A License” shall mean the license granted by Licensor to Licensee pursuant to Section 2.1(d).

1.5 “2A Patents” shall mean all Patents Controlled by Licensor or any of its Current Affiliates as of the Effective Date or during the Term, including Licensor’s rights in any Joint Patents, that claim the composition of matter of any 2A Compound (or 2A Product) or its manufacture or use in the 2A Field. 2A Patents existing as of the Effective Date are set forth in Exhibit 1.5.

1.6 “2A Product” shall mean any pharmaceutical product, in any dosage strength or formulation, containing a 2A Compound as an active pharmaceutical ingredient.

1.7 “2A Technology” shall mean the 2A Know-How and 2A Patents.

1.8 “AAA” shall have the meaning provided in Section 11.2(a).

1.9 “Affiliate” shall mean any company or entity controlled by, controlling, or under common control with a Party or another entity. For the purpose of this definition only, an entity shall be deemed to **“control”** another entity, if it owns directly or indirectly, more than 50% of the outstanding voting securities, capital stock, or other comparable equity or ownership interest of such entity, or exercises equivalent influence over such entity. For purposes of this Agreement, Licensee shall not be considered an Affiliate of Licensor, and Licensor and its Affiliates shall not be considered Affiliates of Licensee.

1.10 “Aggregate Annual Net Sales” of a Licensed Product shall mean aggregate Net Sales of such Licensed Product by Licensee and its Affiliates and Sublicensees in the Territory in a calendar year.

1.11 “AN143 Compound” shall mean the compound designated on Exhibit 1.11, and any salt, solvate, hydrate, intermediate, pro-drug or metabolite thereof.

1.12 “AN143 Field” shall mean all therapeutic, prophylactic, and diagnostic uses for any CNS Indication.

1.13 “AN143 Know-How” shall mean all Information that is specific to any AN143 Compound (including data from preclinical studies of AN143 Product), which Information is Controlled by Licensor or any of its Current Affiliates as of the Effective Date or during the Term and is necessary or reasonably useful to develop, have developed, make, have made, use, sell, have sold, offer for sale and import any AN143 Compound or AN143 Product in the AN143 Field.

1.14 “AN143 License” shall mean the license granted by Licensor to Licensee pursuant to Section 2.1(a).

1.15 “AN143 Patents” shall mean all Patents Controlled by Licensor or any of its Current Affiliates as of the Effective Date or during the Term, including Licensor’s rights in any Joint Patents, to the extent of claims solely directed to the composition of matter of any AN143 Compound (or AN143 Product) or its manufacture or use in the AN143 Field. For clarity, to the extent that any Patent Controlled by Licensor or any of its Affiliates as of the Effective Date or during the Term includes claims directed to an AN143 Compound (or AN143 Product) and one or more compounds or products other than an AN143 Compound (or AN143 Product), only the claims solely directed to an AN143 Compound (or AN143 Product) or its manufacture or use in the AN143 Field shall be included as an AN143 Patent, and any claims directed to both an AN143 Compound (or AN143 Product) and one or more other compounds or products other than an AN143 Compound (or AN143 Product) shall not be an AN143 Patent. AN143 Patents existing as of the Effective Date are set forth in Exhibit 1.15.

1.16 “AN143 Product” shall mean any pharmaceutical product, in any dosage strength or formulation, containing an AN143 Compound as an active pharmaceutical ingredient.

1.17 “AN143 Technology” shall mean the AN143 Know-How and AN143 Patents.

1.18 “AN352 Compound” shall mean the compound designated on Exhibit 1.18, and any salt, solvate, hydrate, intermediate, pro-drug or metabolite thereof, and any other compounds identified in the composition of matter claims in Licensor’s PCT application directed to the compound designated on Exhibit 1.18.

1.19 “AN352 Field” shall mean all therapeutic, prophylactic, and diagnostic uses in humans.

1.20 “AN352 Know-How” shall mean all Information that is specific to any AN352 Compound (including data from preclinical studies of AN352 Product), which Information is Controlled by Licensor or any of its Current Affiliates as of the Effective Date or during the Term and is necessary or reasonably useful to develop, have developed, make, have made, use, sell, have sold, offer for sale and import any AN352 Compound or AN352 Product in the AN352 Field.

1.21 “AN352 License” shall mean the license granted by Licensor to Licensee pursuant to Section 2.1(b).

1.22 “AN352 Patents” shall mean all Patents Controlled by Licensor or any of its Current Affiliates as of the Effective Date or during the Term, including Licensor’s rights in any Joint Patents, that claim the composition of matter of any AN352 Compound (or AN352 Product) or its manufacture or use in the AN352 Field. AN352 Patents existing as of the Effective Date are set forth in Exhibit 1.22.

1.23 “AN352 Product” shall mean any pharmaceutical product, in any dosage strength or formulation, containing an AN352 Compound as an active pharmaceutical ingredient.

1.24 “AN352 Technology” shall mean the AN352 Know-How and AN352 Patents.

1.25 “AN659 Compound” shall mean the compound designated on Exhibit 1.25, and any salt, solvate, hydrate, intermediate, pro-drug or metabolite thereof.

1.26 “AN659 Field” shall have the meaning set forth in **Appendix A**.

1.27 “AN659 Know-How” shall mean all Information that is specific to any AN659 Compound (including data from preclinical studies of AN659 Product), which Information is Controlled by Licensor or any of its Current Affiliates as of the Effective Date or during the Term and is necessary or reasonably useful to develop, have developed, make, have made, use, sell, have sold, offer for sale and import any AN659 Compound or AN659 Product in the AN659 Field.

- 1.28 “AN659 License”** shall mean the licenses granted by Licensors to Licensee pursuant to Section 2.1(c).
- 1.29 “AN659 Patents”** shall mean all Patents Controlled by Licensors or any of its Current Affiliates as of the Effective Date or during the Term, including Licensors’ rights in any Joint Patents, that claim the composition of matter of any AN659 Compound (or AN659 Product) or its manufacture or use in the AN659 Field. AN659 Patents existing as of the Effective Date are set forth in Exhibit 1.29.
- 1.30 “AN659 Product”** shall mean any pharmaceutical product, in any dosage strength or formulation, containing an AN659 Compound as an active pharmaceutical ingredient.
- 1.31 “AN659 Technology”** shall mean the AN659 Know-How and AN659 Patents.
- 1.32 “Applicable Laws”** shall mean the applicable provisions of any and all national, supranational, regional, state and local laws, treaties, statutes, rules, regulations, administrative codes, guidance, ordinances, judgments, decrees, directives, injunctions, orders, permits (including Regulatory Approvals) of or from any court, arbitrator, Regulatory Authority or governmental agency or authority having jurisdiction over or related to the subject item or subject person, including the FCPA, Export Control Laws and other comparable laws.
- 1.33 “Bankruptcy Laws”** shall have the meaning provided in Section 9.5.
- 1.34 “Beacon Agreement”** shall have the meaning provided in Section 3.8.
- 1.35 “Business Day”** shall mean any day that is not a Saturday, a Sunday or other day on which banks are required or authorized by law to close in the State of California, U.S.
- 1.36 “Change in Control”** shall have the meaning provided in Section 3.9.
- 1.37 “CNS Indication”** shall have the meaning set forth in **Appendix A**.
- 1.38 “Combination Product”** shall mean any Licensed Product that contains or comprises both (a) a Licensed Compound, and (b) at least one other active ingredient(s), whether packaged together or in a single finished dosage form.
- 1.39 “Commercially Reasonable Efforts”** shall mean, with respect to a Party’s obligation under this Agreement to conduct a particular activity, that level of efforts and resources required to carry out such obligation consistent with the diligence efforts a company engaged in research and development in the pharmaceutical or biotechnology industry of comparable size and having adequate resources to fund anticipated research and development activities devotes to a compound or product at a similar stage of development or commercialization, taking into account measures of patent coverage, relative safety and efficacy, product profile, the competitiveness of the marketplace, the proprietary position of such compound or product, the regulatory structure involved, the market potential of such compound or product, industrial standards in manufacturing and supplying pharmaceutical products and its components, and other relevant factors, including comparative technical, legal, scientific or medical factors. Commercially Reasonable Efforts requires that a Party, at a minimum, (a) [***], (b) [***], and (c) [***], in each case, [***], and [***] and then [***].

1.40 “Confidential Information” shall mean all Information or other proprietary scientific, marketing, financial or commercial information or data, which is generated by or on behalf of a Party or its Affiliates and which one Party or any of its Affiliates has furnished or made available to the other Party or its Affiliates, whether in oral, written or electronic form.

1.41 “Control” (including any variations such as **“Controlled”** and **“Controlling”**) shall mean, with respect to any Information, Patents or other intellectual property rights, possession by a Party or Third Party of the right, power and authority (whether by ownership, license or otherwise, other than by virtue of any rights granted under this Agreement) to grant access to, to grant use of, or to grant a license or a sublicense to such Information, Patents or intellectual property rights without violating the terms of any agreement or other arrangement with any Third Party.

1.42 “Current Affiliates” shall mean any Affiliate of Licensor that exists as of the Effective Date, other than Licensee.

1.43 “Development Plan” shall have the meaning provided in Section 3.1(b).

1.44 “Effective Date” shall have the meaning provided in the introductory paragraph of this Agreement.

1.45 “Elected Patents” shall have the meaning provided in Section 8.2(a)(ii).

1.46 “Executive Officers” shall mean a senior executive officer (or his or her delegate) of Licensor and the Chief Executive Officer of Licensee.

1.47 “Export Control Laws” shall mean all applicable U.S. laws and regulations relating to (a) sanctions and embargoes imposed by the Office of Foreign Assets Control of the U.S. Department of Treasury or (b) the export or re-export of commodities, technologies, or services, including the Export Administration Act of 1979, 24 U.S.C. §§ 2401-2420, the International Emergency Economic Powers Act, 50 U.S.C. §§ 1701-1706, the Trading with the Enemy Act, 50 U.S.C. §§ 1 et. seq., the Arms Export Control Act, 22 U.S.C. §§ 2778 and 2779, and the International Boycott Provisions of Section 999 of the U.S. Internal Revenue Code of 1986 (as amended).

1.48 “FCPA” shall mean the U.S. Foreign Corrupt Practices Act (15 U.S.C. Section 78dd-1, et. seq.) as amended.

1.49 “Field” shall mean the AN143 Field, AN352 Field, AN659 Field or 2A Field, as applicable for each of the AN143 Products, AN352 Products, AN659 Products and 2A Products, respectively.

1.50 “First Commercial Sale” shall mean, with respect to any Licensed Product, the first sale by Licensee or its Affiliate or Sublicensee for end use or consumption of such Licensed Product in a country in the Territory after the governing Regulatory Authority of such country has granted Regulatory Approval of such Licensed Product.

1.51 “IND” shall mean an investigational new drug application, clinical study application, clinical trial exemption, or similar application or submission for approval to conduct human clinical investigations filed with or submitted to a Regulatory Authority in conformance with the requirements of such Regulatory Authority.

1.52 “Indemnitee” shall have the meaning provided in Section 10.3.

1.53 “Indemnitor” shall have the meaning provided in Section 10.3.

1.54 “Information” shall mean all tangible and intangible techniques, technology, practices, trade secrets, inventions (whether patentable or not), processes, designs, formulas, ideas, programs, software models, algorithms, developments, experimental works, protocols, methods, knowledge, know-how, skill, experience, test data and results (including pharmacological, toxicological and non-clinical and clinical data and results), compilations of data, other works of analytical and quality control data, results and descriptions

1.55 “Invention” shall mean any discovery or invention, whether or not patentable, relating to any Licensed Compound or any Licensed Product or its manufacture or use made in the course of any development, manufacturing, regulatory or commercialization activities contemplated by this Agreement.

1.56 “Joint Discovery Committee” shall have the meaning provided in Section 3.8.

1.57 “Joint Patent” shall have the meaning provided in Section 8.1.

1.58 “License” shall mean the AN143 License, AN352 License, AN659 License or 2A License, as applicable.

1.59 “Licensed Compounds” shall mean the AN143 Compounds, AN352 Compounds, AN659 Compounds or 2A Compounds, as applicable.

1.60 “Licensed Know-How” shall mean the AN143 Know-How, AN352 Know-How, AN659 Know-How or 2A Know-How, as applicable.

1.61 “Licensed Patents” shall mean the AN143 Patents, AN352 Patents, AN659 Patents or 2A Patents, as applicable.

1.62 “Licensed Product Family” shall mean each of AN143 Products as a group, AN352 Products as a group, AN659 Products as a group, or 2A Products as a group.

1.63 “Licensed Products” shall mean the AN143 Products, AN352 Products, AN659 Products or 2A Products, as applicable.

1.64 “Licensed Technology” shall mean the AN143 Technology, AN352 Technology, AN659 Technology or 2A Technology, as applicable.

1.65 “Licensee Know-How” shall mean all Information with respect to any Licensed Compound or Licensed Product, which Information is Controlled by Licensee or any of its Affiliates during the Term, including all Information relating to any Licensed Compound or Licensed Product developed or generated in the course of any development, manufacturing, regulatory or commercialization activities by or on behalf of Licensee or any of its Affiliates contemplated by this Agreement.

1.66 “Licensee Patents” shall mean all Patents Controlled by Licensee or any of its Affiliates during the Term, which Patents claim the composition of matter, manufacture or use of any Licensed Compound (or Licensed Product), including all Patents that claim any Invention relating to any Licensed Product or its manufacture or use made, either solely or jointly with others, by one or more employees or agents of Licensee, its Affiliates or other persons acting under its authority; provided that Licensee Patents exclude any Joint Patents and any Patents within the New Compound IP.

1.67 “Licensee Technology” shall mean the Licensee Know-How and Licensee Patents.

1.68 “Licensor Product” shall have the meaning set forth in **Appendix A**.

1.69 “MAA” shall mean an application for the authorization for marketing of a Licensed Product, including all amendments and supplements thereto, filed with any Regulatory Authority to gain approval to market a Licensed Product in a given country or group of countries.

1.70 “Net Sales” shall mean the gross amounts invoiced for sales or other dispositions of Licensed Products by or on behalf of Licensee or any of its Affiliates or Sublicensees (each, a **“Selling Party”**) to Third Parties (other than Sublicensees), less deductions actually incurred, allowed, paid, accrued or otherwise specifically allocated to Licensed Products by the Selling Party in accordance with U.S. generally accepted accounting principles or international financial reporting standards, in either case, consistently applied throughout the organization of the applicable Selling Party for:

- (a) [***];
- (b) [***];
- (c) [***];
- (d) [***]; and
- (e) [***].

Sales of Licensed Products by a Selling Party to another Selling Party for resale by such entity to a Third Party (other than a Selling Party) shall not be deemed a sale for purposes of this definition of “Net Sales,” provided that the subsequent resale is included in the computation of Net Sales. Further, transfers or dispositions of Licensed Products as free promotional samples in commercially reasonable amounts, consistent with prevailing industry standards, and Licensed Products used in development or regulatory activities, compassionate use, indigent programs, investigator-initiated trials or on a named patient basis shall be disregarded in determining Net Sales.

In the event that a Licensed Product is sold in the form of a Combination Product, Net Sales of the Combination Product shall be determined by [***].

1.71 “New Compound IP” shall mean all Inventions relating to any Licensed Compound or its manufacture or use, including new uses or formulations of such Licensed Compound, made, either solely by or jointly with Licensee or with others, by one or more employees or agents of Licensee, its Affiliates or other persons acting under its authority, and all intellectual property rights therein, including any Patents claiming any such Inventions.

1.72 “Party” shall mean Licensee or Licenser individually, and **“Parties”** shall mean Licensee and Licenser collectively.

1.73 “Patents” shall mean patents and patent applications, including provisional applications, continuations, continuations-in-part, continued prosecution applications, divisions, substitutions, reissues, additions, renewals, reexaminations, extensions, term restorations, confirmations, registrations, revalidations, revisions, priority rights, requests for continued examination and supplementary protection certificates granted in relation thereto, as well as utility models, innovation patents, petty patents, patents of addition, inventor’s certificates, and equivalents in any country or jurisdiction.

1.74 “Regulatory Approval” shall mean any and all approvals, licenses, permits, registrations or authorizations of or from any Regulatory Authority that are necessary to market and sell a pharmaceutical product in any country or other jurisdiction.

1.75 “Regulatory Authority” shall mean any country, federal, supranational, state or local regulatory agency, department, bureau or other governmental or regulatory authority having the administrative authority to regulate the development or marketing of pharmaceutical products in any country or other jurisdiction.

1.76 “ROFN Compound” shall have the meaning provided in Section 3.8.

1.77 “ROFN Field” shall have the meaning provided in Section 3.8.

1.78 “Royalty Term” shall have the meaning provided in Section 4.2.

1.79 “SEC” shall have the meaning provided in Section 6.4.

1.80 “Securities Act” means the Securities Act of 1933, as amended.

1.81 “Sublicensee” shall mean any Third Party to whom Licensee has directly or indirectly granted a sublicense under all or any portion of the License.

1.82 “Term” shall have the meaning provided in Section 9.1.

1.83 “Terminated Products” shall have the meaning provided in Section 9.3(b).

1.84 “Territory” shall mean all countries in the world.

1.85 “Third Party” shall mean any entity other than Licensee and its Affiliates and Licensor and its Affiliates.

1.86 “U.S.” shall mean the United States of America and its territories and possessions.

1.87 “Valid Claim” shall mean a claim contained in (a) an issued and unexpired Patent, which claim has not been found to be unpatentable, invalid, revocable or unenforceable by a decision of a court or other authority of competent jurisdiction in the subject country, which decision is unappealable or unappealed within the time allowed for appeal, and has not been admitted to be invalid or unenforceable through abandonment, reissue, disclaimer or otherwise, or (b) a Patent application that has not been irretrievably cancelled, withdrawn, abandoned or rejected. A Patent application pending for more than [***] years (including the pendency of any priority Patent applications) shall not be considered to have any Valid Claim for purposes of this Agreement unless and until a Patent with respect to such application issues with such claim.

2. LICENSE

2.1 License Grant.

(a) AN143. Subject to the terms and conditions of this Agreement, Licensor hereby grants to Licensee an exclusive (even as to Licensor), royalty-bearing license, with the right to sublicense through multiple tiers as provided in Section 2.2, under the AN143 Technology solely to develop, make, have made, use, sell, offer for sale and import AN143 Products in the AN143 Field in the Territory during the Term. Further, Licensor grants to Licensee, with the right to convey to Sublicensees as provided in Section 2.2, a covenant not to sue under any Patents or Information (to the extent such Information was disclosed by Licensor to Licensee) owned by Licensor or its Current Affiliates (other than the AN143 Technology, which is licensed under the AN143 License) that would be infringed in the case of Patents or misappropriated in the case of Information, by the development, manufacture, use, sale, offer for sale or import of any AN143 Product in the AN143 Field in the Territory, solely to the extent necessary for Licensee and its Affiliates and Sublicensees to develop, make, have made, use, sell, offer for sale and import any AN143 Product in the AN143 Field in the Territory.

(b) AN352. Subject to the terms and conditions of this Agreement, Licensor hereby grants to Licensee an exclusive (even as to Licensor), royalty-bearing license, with the right to sublicense through multiple tiers as provided in Section 2.2, under the AN352 Technology solely to develop, make, have made, use, sell, offer for sale and import AN352 Products in the AN352 Field in the Territory during the Term. Further, Licensor grants to Licensee, with the right to convey to Sublicensees as provided in Section 2.2, a covenant not to sue under any Patents or Information (to the extent such Information was disclosed by Licensor to Licensee) owned by Licensor or its Current Affiliates (other than the AN352 Technology, which is licensed under the AN352 License) that would be infringed in the case of Patents or misappropriated in the case of Information, by the development, manufacture, use, sale, offer for sale or import of any AN352 Product in the AN352 Field in the Territory, solely to the extent necessary for Licensee and its Affiliates and Sublicensees to develop, make, have made, use, sell, offer for sale and import any AN352 Product in the AN352 Field in the Territory.

(c) **AN659.** Subject to the terms and conditions of this Agreement, Licensor hereby grants to Licensee an exclusive (even as to Licensor), royalty-bearing license, with the right to sublicense through multiple tiers as provided in Section 2.2, under the AN659 Technology solely to develop, make, have made, use, sell, offer for sale and import AN659 Products in the AN659 Field in the Territory during the Term. Further, Licensor grants to Licensee, with the right to convey to Sublicensees as provided in Section 2.2, a covenant not to sue under any Patents or Information (to the extent such Information was disclosed by Licensor to Licensee) owned by Licensor or its Current Affiliates (other than the AN659 Technology, which is licensed under the AN659 License) that would be infringed in the case of Patents or misappropriated in the case of Information, by the development, manufacture, use, sale, offer for sale or import of any AN659 Product in the AN659 Field in the Territory, solely to the extent necessary for Licensee and its Affiliates and Sublicensees to develop, make, have made, use, sell, offer for sale and import any AN659 Product in the AN659 Field in the Territory.

(d) **2A.** Subject to the terms and conditions of this Agreement, Licensor hereby grants to Licensee an exclusive (even as to Licensor), royalty-bearing license, with the right to sublicense through multiple tiers as provided in Section 2.2, under the 2A Technology solely to develop, make, have made, use, sell, offer for sale and import 2A Products in the 2A Field in the Territory during the Term. Further, Licensor grants to Licensee, with the right to convey to Sublicensees as provided in Section 2.2, a covenant not to sue under any Patents or Information (to the extent such Information was disclosed by Licensor to Licensee) owned by Licensor or its Current Affiliates (other than the 2A Technology, which is licensed under the 2A License) that would be infringed in the case of Patents or misappropriated in the case of Information, by the development, manufacture, use, sale, offer for sale or import of any 2A Product in the 2A Field in the Territory, solely to the extent necessary for Licensee and its Affiliates and Sublicensees to develop, make, have made, use, sell, offer for sale and import any 2A Product in the 2A Field in the Territory.

(e) Notwithstanding anything to the contrary in this Section 2, Licensor shall retain the exclusive right (even as to Licensee) under the Licensed Technology to develop, make, have made and use any and all intermediates, pro-drugs and metabolites within any Licensed Compound for the development, manufacture, use, sale, offer for sale or import of any Licensor Product.

2.2 Sublicense and Subcontract Rights.

(a) **Right to Sublicense.** Subject to the terms and conditions of this Agreement, Licensee shall have the right to grant sublicenses under the License and to convey rights under the covenants not to sue granted in Section 2.1 to an Affiliate of Licensee or a Third Party, subject to, if such grant or conveyance is within [***] [(***)] months of the Effective Date, prior written consent of Licensor, which shall not be unreasonably withheld.

(b) Right to Subcontract. Subject to the terms and conditions of this Agreement, Licensee shall have the right to subcontract its activities with respect to any Licensed Product to its Affiliates, contractors and any other Third Party.

(c) Sublicense and Subcontract Terms. Any sublicense and subcontract granted by Licensee under this Agreement shall be (i) in writing and (ii) subject and subordinate to, and consistent with, the terms and conditions of this Agreement. Licensee shall provide Licensor with a copy of any sublicense agreement entered into with a Sublicensee, and any amendment thereto, within [***] days of its execution (provided that Licensee may redact any confidential information contained therein that is not necessary to ascertain compliance with this Agreement). Licensee shall be responsible for the compliance of its Affiliates, Sublicensees and subcontractors with the relevant obligations under this Agreement and shall, at its own cost, enforce compliance by its Affiliates, Sublicensees and subcontractors with the terms of the sublicense agreement.

2.3 Negative Covenants.

(a) Each Party hereby covenants that it will not, and will not permit its Affiliate, Sublicensee or other Third Party to, directly or indirectly use or practice (a) the AN143 Technology outside the AN143 License, (b) the AN352 Technology outside the AN352 License, (c) the AN659 Technology outside the AN659 License or (d) the 2A Technology outside the 2A License. Licensee further covenants that it will not, and will not permit its Affiliate, Sublicensee or other Third Party to, directly or indirectly use or practice the AN352 Technology in weight loss, weight management, or obesity, but only so long as Licensee is an Affiliate of Licensor.

(b) Licensee grants to Licensor, with the right to convey to licensees or sublicensees of rights to any Licensor Product, a covenant not to sue under the Licensee Technology that would be infringed in the case of Patents or misappropriated in the case of Information, by the development, manufacture or use of any intermediate, pro-drug or metabolite within any Licensed Compound, solely to the extent necessary for Licensor and its Affiliates and licensees to develop, make, have made and use any intermediate, pro-drug or metabolite within any Licensed Compound for the development, manufacture, use, sale, offer for sale or import of any Licensor Product.

2.4 No Implied Licenses. No right or license under any Patents or Information of either Party is granted or shall be granted by implication. All such rights or licenses are or shall be granted only as expressly provided in the terms of this Agreement.

2.5 Licensed Know-How.

(a) Data Access. Throughout the Term, Licensor shall make available to Licensee at Licensee's expense all information that describes or contains Licensed Know-How that may from time to time come into Licensor's possession as necessary for Licensee to practice the License.

(b) Access to Personnel. Upon Licensee's request and prior written consent, Licensor shall provide Licensee reasonable access to Licensor employees and consultants familiar with the Licensed Compounds and Licensed Know-How, as reasonably necessary to provide such information as necessary for Licensee to practice its License.

3. DEVELOPMENT, REGULATORY AND COMMERCIALIZATION MATTERS

3.1 Development.

(a) **Conduct of Development Activities.** Licensee (itself and through its Affiliates and Sublicensees, as applicable) shall be solely responsible, at its own expense, for all development activities with Licensed Products in the applicable Field in the Territory.

(b) **Development Plan.** Licensee shall prepare a written development plan, summarizing the development activities with the Licensed Products in the applicable Field to be conducted by Licensee (itself and through its Affiliates and Sublicensees, as applicable), and the timeline regarding such activities (as may be amended, the ***“Development Plan”***). An initial Development Plan is attached to this Agreement as **Appendix B**. Licensee shall review from time to time and, as appropriate, prepare an update to the then-current Development Plan that reflects any material changes with respect to development of Licensed Products and send such updated Development Plan to Licensor for review. Licensee shall give good faith consideration to any written comments provided by Licensor with respect to any updated Development Plan but shall retain sole control over decisions with regard to the Development Plan and any changes thereto. Licensee or its Affiliates or Sublicensees, as applicable, shall conduct development of Licensed Compounds and Licensed Products in accordance with the then-current Development Plan.

(c) **Data Sharing.** If any data or information relating to any intermediate, pro-drug or metabolite within any Licensed Compound is generated in the course of development activities with any of the Licensed Products, Licensee shall promptly share such data or information with Licensor and Licensor and its Affiliates, licensees and sublicensees shall have the right to use and disclose such data or information as reasonably necessary to comply with their obligations with respect to the preparation, filing, obtaining and maintenance of Regulatory Approvals for any Licensor Products.

3.2 Regulatory. Licensee (itself and through its Affiliates and Sublicensees, as applicable) shall be solely responsible, at its own expense, for all regulatory activities with respect to Licensed Products in the applicable Field in the Territory, including formulating regulatory strategy and preparing, filing, obtaining and maintaining Regulatory Approvals for Licensed Products in the applicable Field in the Territory, shall be the holder of all Regulatory Approvals for Licensed Products in the applicable Field in the Territory, and shall have responsibility for interactions with Regulatory Authorities with respect to Licensed Products in the applicable Field in the Territory. Licensee shall keep Licensor regularly and fully informed of the preparation and Regulatory Authority review and approval of submissions and communications with Regulatory Authorities with respect to Licensed Products in the applicable Field in the Territory. Licensor shall have the right to comment on all major regulatory filings and documents (including INDs, Drug Approval Applications, material labeling supplements, Regulatory Authority meeting requests, and core data sheets) with respect to Licensed Products in the applicable Field in the Territory to the extent such regulatory filings and documents contain information or data regarding Licensor's compounds other than the Licensed Compounds, in advance of submission by Licensee,

and Licensee shall consider in good faith any such comments of Licensor. In addition, Licensee shall promptly provide Licensor with copies of all material documents, information and correspondence received by Licensee (or its Affiliate or Sublicensee) from a Regulatory Authority and upon reasonable request, with copies of any other documents, reports and communications from or to any Regulatory Authority relating to Licensed Compounds, Licensed Products or activities under this Agreement.

3.3 Manufacture and Supply. Licensee (itself and through its Affiliates and Sublicensees, as applicable) shall be solely responsible, at its cost and expense, for the manufacture and supply of Licensed Compound or Licensed Product for commercial use in the Territory.

3.4 Commercialization. Licensee (itself and through its Affiliates and Sublicensees, as applicable) shall be solely responsible, at its own expense, for marketing, selling, offer for sale, distributing, promoting and otherwise commercializing Licensed Products in the applicable Field in the Territory, in accordance with the terms and conditions of this Agreement.

3.5 Compliance with Applicable Laws. Licensee shall conduct, and shall cause its Affiliates and Sublicensees to conduct, all development, regulatory, manufacturing and commercialization activities with respect to Licensed Compounds and Licensed Products in the applicable Field in the Territory in compliance with all Applicable Laws, including good scientific and clinical practices under the Applicable Laws of the country in which such activities are conducted.

3.6 Diligence. Licensee (itself and through its Affiliates and Sublicensees, as applicable) shall use Commercially Reasonable Efforts to develop and conduct regulatory activities with respect to an AN143 Product, an AN659 Product and an 2A Product in the applicable Field in the Territory, seek Regulatory Approval of each such Licensed Product in the U.S. and the European Union and, following receipt of Regulatory Approval for any such Licensed Product in the applicable Field in any country or other regulatory jurisdiction, to promote, market, sell and distribute, and to meet market demand for, such Licensed Product in the applicable Field in such country or other jurisdiction in the Territory.

3.7 Disclosures by Licensee. Until receipt by Licensee or its Affiliate or Sublicensee of Regulatory Approval in any country or other regulatory jurisdiction in the Territory, Licensee shall keep Licensor appropriately informed about Licensee's and its Affiliates' and Sublicensees' development, clinical trial progress and commercialization efforts with respect to Licensed Products in the applicable Field in such country or regulatory jurisdiction in the Territory. Without limiting the generality of the foregoing, Licensee shall provide Licensor with prompt written notice of the following:

- (a) plans, and any material changes in such plans, for and filing of an IND for any Licensed Product in the applicable Field in the Territory;
- (b) plans, and any material changes in such plans, for and initiation of any clinical trial of any Licensed Product in the applicable Field in the Territory;
- (c) plans, and any material changes in such plans, for and termination of development of any Licensed Product in the applicable Field in the Territory;

- (d) plans, and any material changes in such plans, for and filing of any MAA for any Licensed Product in the applicable Field in the Territory;
- (e) receipt of approval of any MAA for any Licensed Product in the applicable Field in the Territory;
- (f) any information concerning a serious adverse event or other observations that may reasonably lead to a clinical hold or suspension of a clinical trial for any Licensed Product;
- (g) imposition of a clinical hold, suspension of a clinical trial or receipt of notice of any regulatory or quality violation from a Regulatory Authority with respect to any Licensed Product in the applicable Field in the Territory; and
- (h) any other significant development or commercialization plans, activities or results with respect to Licensed Products in the applicable Field in the Territory.

As long as Licensor has a representative on Licensee's Board of Directors, any reporting or disclosure requirements under this Section 3.7(a)-(e) or (h), or Section 3.2 may be satisfied by reporting or disclosing the required information to Licensee's Board of Directors during a time when such representative is present, so long as such information is also provided in a [***] report.

Licensee shall provide Licensor with [***] written reports summarizing in reasonable detail Licensee's and its Affiliates' and Sublicensees' development and commercialization efforts with respect to Licensed Products in the applicable Field during the applicable [***] period (including a description of (i) the development and commercialization efforts it has performed, or caused to be performed, since the preceding report (including any filings, submissions, communications or meetings with any Regulatory Authorities), (ii) its development and commercialization activities in process, and (iii) the future activities it expects to initiate during the then-current calendar year (including any filings, submissions, communications or meetings with any Regulatory Authorities), including with respect to clauses (ii) and (iii), (x) the estimated timeline for the completion of such activities and (y) whether it plans to subcontract any such activities).

3.8 Right of First Negotiation. The Parties acknowledge that the License and Collaboration Agreement by and between Beacon Discovery, Inc. and the Licensor dated January 1, 2020 (the "**Beacon Agreement**") will remain with Licensor; provided that, for the avoidance of doubt, Licensor shall have no obligation to maintain the Beacon Agreement in effect. The Parties shall establish a joint committee ("**Joint Discovery Committee**") composed of [***] [(***)] representatives of each Party and meet as reasonably agreed by the Parties. The Joint Discovery Committee shall review select compounds that arise under the Beacon Agreement and are identified by Licensor as having potential utility for a CNS Indication, and decide whether to designate such compound for investigation by the Licensee (each such designated compound, an "**ROFN Compound**"). Licensor hereby grants to Licensee the exclusive first right to negotiate in good faith with Licensor for a license to any ROFN Compound. If, after the Effective Date, Licensee wishes to exclusively license rights to such ROFN Compounds in the ROFN Field (as defined below), Licensee shall provide written notice to Licensor identifying the ROFN

Compound that Licensee wishes to license, and Licensor and Licensee agree to negotiate such license in good faith for [***] [(***)] days from the designation. The **“ROFN Field”** shall mean all therapeutic, prophylactic, and diagnostic uses for any CNS Indication.

3.9 Licensor Change in Control. Upon a Change in Control, (a) the obligations of Licensee under Section 3.1(b), the third and fourth sentence of Section 3.2 and Section 3.6 shall terminate, (b) Licensee may satisfy all disclosure and notification requirements of Licensee under Section 3.7 through the [***] written reports provided for therein (except with respect to Section 3.7(g), which shall continue to require prompt written notice), and (c) Licensor’s right to consent to sublicenses as set forth in Section 2.2(a) shall terminate. **“Change in Control”** means any of the following transactions consummated by Licensor: (a) a sale or other disposition of all or substantially all of the assets of Licensor to a Third Party; (b) any consolidation, merger or reorganization of Licensor in which the holders of the voting securities of Licensor outstanding immediately prior to consummation of such consolidation, merger or reorganization cease to own, directly or indirectly, at least fifty percent (50%) of the combined voting power of the surviving entity (or, if the surviving entity is a wholly owned subsidiary, its parent) immediately after consummation such consolidation, merger or reorganization; or (c) any transaction or series of related transactions in which a Third Party or group of Third Parties acting in concert acquires more than fifty percent (50%) of the voting securities of Licensor; provided that a Change in Control will not include (i) any transaction effected exclusively to change the domicile of Licensor, or (ii) any transaction or series of transactions principally for bona fide equity financing purposes in which cash is received by Licensor or any successor, or indebtedness of Licensor is cancelled or converted, or a combination thereof.

4. PAYMENTS

4.1 Royalties. Licensee shall pay a [***]% royalty to Licensor on incremental Aggregate Annual Net Sales of each AN352 Product in each calendar year, and a [***]% royalty to Licensor on incremental Aggregate Annual Net Sales of each Licensed Product other than AN352 Products in each calendar year.

4.2 Royalty Term. Royalties due under Section 4.1 shall be payable on a Licensed Product-by-Licensed Product and country-by-country basis in the Territory with respect to Net Sales of a Licensed Product in a country in the Territory during the period of time commencing on the First Commercial Sale of such Licensed Product in such country and ending upon the later of: (a) 10 years from the date of First Commercial Sale of such Licensed Product in such country; and (b) expiration of the last-to-expire Valid Claim of the Licensed Patents (including any Joint Patents) covering the manufacture, use or sale of such Licensed Product in such country (the **“Royalty Term”**). On a Licensed Product-by-Licensed Product and country-by-country basis in the Territory, upon expiration of the Royalty Term for a Licensed Product in a country, the License with respect to such Licensed Product in such country, and the covenant not to sue with respect to such Licensed Product in such country, shall become fully-paid, irrevocable and perpetual and shall survive expiration or termination of this Agreement.

4.3 Royalty Adjustment. During any part of the Royalty Term for a Licensed Product in which there is no Valid Claim of the Licensed Patents in the country of sale claiming such Licensed Product or the Licensed Compound contained therein, or the manufacture or use of such

Licensed Product or Licensed Compound contained therein, in such country the royalty payable with respect to Net Sales of such Licensed Product in such country shall be reduced by [***]%, which reduction will be calculated by determining the portion of total Net Sales of the relevant Licensed Product in a calendar quarter that is attributable to the country in which such reduction applies, and determining the total royalties for such Licensed Product without reduction, and then reducing by [***]% the applicable portion (based on Net Sales of such Licensed Product in such country as a percentage of total Net Sales of such Licensed Product) of total royalties attributable to such Licensed Product in such country.

4.4 Third Party Licenses. The Licenses will be subject to payments due and payable to any Third Party from whom the applicable intellectual property rights have been licensed or acquired by Licensor ("**Third Party Owner**") for the practice of any such License by or on behalf of Licensee or its Affiliates or Sublicensees. Each Party shall promptly notify the other Party if it becomes aware of any intellectual property rights of any Third Party Owner that relate specifically to any Licensed Product or its manufacture or use. If Licensor comes to Control Patents or other intellectual property rights of any Third Party Owner after the Effective Date that relate specifically to a Licensed Product or its manufacture or use, Licensor shall notify Licensee in writing of such intellectual property rights, including a description thereof and any payments that Licensor is obligated to pay in connection with the grant, maintenance or exercise of the sublicense of such rights to Licensee. Such intellectual property rights will be sublicensed to Licensee only if Licensee provides Licensor with written notice in which: (i) Licensee consents to adding such intellectual property rights to the definition of Licensed Technology; (ii) Licensee agrees to be responsible for all payments that would be owed under such agreement between Licensor and such Third Party Owner (as disclosed to Licensee) due to Licensor's granting a sublicense to Licensee or Licensee's practice of such sublicense; and (iii) Licensee acknowledges in writing that its sublicense is subject to the applicable terms and conditions of such agreement between Licensor and such Third Party Owner.

5. PAYMENT; RECORDS; AUDITS

5.1 Payment; Reports. Royalties shall be calculated and reported for each calendar quarter. Licensee shall, within five Business Days after the end of each calendar quarter, provide Licensor a good faith estimate of the royalties due for such calendar quarter. Licensee shall pay Licensor the royalties due within 45 days after the end of such calendar quarter. Each payment shall be accompanied by a report of Net Sales of each Licensed Product by Licensee and its Affiliates and Sublicensees in sufficient detail to permit confirmation of the accuracy of the payment made, including gross sales and Net Sales of each Licensed Product on a country-by-country basis, including deductions as applicable to calculate Net Sales the royalty payable, the method used to calculate the royalties, and the exchange rates used to calculate the royalties.

5.2 Exchange Rate; Manner and Place of Payment. All payments hereunder shall be payable in U.S. dollars. When conversion of payments from any foreign currency is required, such conversion shall be at an exchange rate equal to the weighted average of the rates of exchange for the currency of the country from which such payments are payable as published by *The Wall Street Journal*, Western U.S. Edition during the calendar quarter for which a payment is due. All payments owed under this Agreement shall be made by wire transfer in immediately available funds to a bank and account designated in writing by Licensor, unless otherwise specified in writing by Licensor.

5.3 Income Tax Withholding. Licensor will pay any and all taxes levied on account of any payments made to it under this Agreement. If any taxes are required by Applicable Laws to be withheld by Licensee from any payment made to Licensor under this Agreement, Licensee will (a) deduct such taxes from the payment made to Licensor, (b) timely pay the taxes to the proper taxing authority, and (c) send proof of payment to Licensor and certify its receipt by the taxing authority within 30 days following such payment. For purposes of this Section 5.3, each Party agrees to provide the other with reasonably requested assistance to enable the due deduction by the paying Party and appropriate recovery by the other Party, which assistance includes, but is not limited to, provision of any tax forms and other information that may be reasonably necessary in order for the paying Party not to withhold tax or to withhold tax at a reduced rate under an applicable bilateral income tax treaty. If Licensor assigns, transfers or otherwise disposes of some or all of its rights and obligations under this Agreement to any other entity and if, as a result of such action, the withholding taxes required by Applicable Laws with respect to payments under this Agreement is increased, then any amount payable to Licensor's assignee or transferee under this Agreement shall be limited to the amount that would have been payable to Licensor had no such assignment, transfer or disposal occurred. If Licensee assigns, transfers or otherwise disposes of some or all of its rights and obligations under this Agreement to any other entity and if, as a result of such action, the withholding taxes required by Applicable Laws with respect to payments under this Agreement is increased, then any amount payable by Licensee's assignee or transferee under this Agreement shall be increased to ensure that Licensor receives the amount that would have been payable to Licensor had no such assignment, transfer or disposal occurred and it shall be a condition precedent to any such assignment, transfer or disposal that such assignee or transferee shall assume Licensee's withholding and payment obligations as set forth in this Section 5.3.

5.4 Records; Audits. Licensee shall keep, and require its Affiliates and Sublicensees to keep, complete, fair and true books of accounts and records for the purpose of determining the amounts payable to Licensor pursuant to this Agreement. Such books and records shall be kept for at least [***]. Licensor shall have the right to cause an independent, certified public accountant reasonably acceptable to Licensee to audit such records to confirm Net Sales, royalties and other payments for a period covering not more than the preceding [***]. Such audits may be exercised during normal business hours upon reasonable prior written notice to Licensee. Prompt adjustments shall be made by the Parties to reflect the results of such audit. Licensor shall bear the full cost of such audit unless such audit discloses an underpayment by Licensee of more than [***]% of the amount of royalties or other payments due under this Agreement for any applicable [***], in which case, Licensee shall bear the cost of such audit and shall promptly remit to Licensor the amount of any underpayment. Any overpayment by Licensee revealed by an audit shall be [***] against future payment owed by Licensee to Licensor (and if no further payments are due, shall be refunded by Licensor at the request of Licensee).

5.5 Late Payments. In the event that any payment due under this Agreement is not made when due, the payment shall accrue interest from the date due at a rate per annum that is [***] on the last Business Day of the applicable calendar quarter prior to the date on which such payment is due; *provided, however*, that in no event shall such rate exceed the maximum legal annual interest rate. The payment of such interest shall not limit Licensor from exercising any other rights it may have as a consequence of the lateness of any payment.

6. CONFIDENTIALITY

6.1 Confidential Information. Except to the extent expressly authorized by this Agreement or otherwise agreed in writing by the Parties, each Party (in such capacity, the **“Receiving Party”**) agrees that, during the Term and for [***] years thereafter, it shall keep confidential and shall not publish or otherwise disclose to any Third Party, and shall not use for any purpose other than as expressly provided for in this Agreement or any other written agreement between the Parties, any Confidential Information furnished or made available to it by or on behalf of the other Party (in such capacity, the **“Disclosing Party”**). All New Compound IP shall be Confidential Information of Licensor, and Licensor shall be deemed the Disclosing Party and Licensee shall be deemed the Receiving Party with respect thereto. The Receiving Party shall use at least the same standard of care as it uses to protect proprietary or confidential information of its own (but in no event less than reasonable care) to ensure that its, and its Affiliates', employees, agents, consultants and other representatives do not disclose or make any unauthorized use of the Confidential Information. The Receiving Party shall promptly notify the Disclosing Party upon discovery of any unauthorized use or disclosure of the Disclosing Party's Confidential Information.

6.2 Exceptions. Confidential Information shall not include any information which the Receiving Party can prove by competent evidence: (a) is now, or hereafter becomes, through no act or failure to act on the part of the Receiving Party, generally known or available; (b) is known by the Receiving Party and/or any of its Affiliates at the time of receiving such information, as evidenced by its written prior records (provided that this clause (b) shall not apply to Licensee as the Receiving Party with respect to New Compound IP); (c) is hereafter furnished to the Receiving Party or any of its Affiliates by a Third Party, as a matter of right and without restriction on disclosure; or (d) is independently discovered or developed by the Receiving Party and/or any of its Affiliates, without the use of Confidential Information of the Disclosing Party, as evidenced by its contemporaneously-maintained written records.

6.3 Authorized Disclosure. Notwithstanding the provisions of Section 6.1, the Receiving Party may disclose Confidential Information of the Disclosing Party as expressly permitted by this Agreement, or if and to the extent such disclosure is reasonably necessary in the following instances:

- (a) filing or prosecuting Patents as permitted by this Agreement;
- (b) enforcing such Party's rights under this Agreement;
- (c) prosecuting or defending litigation as permitted by this Agreement;
- (d) complying with applicable court orders or governmental regulations, including from Regulatory Authorities;

(e) disclosure to Affiliates, actual and potential licensees and Sublicensees, employees, consultants or agents of the Receiving Party who have a need to know such information

in order for the Receiving Party to exercise its rights or fulfill its obligations under this Agreement, provided, in each case, that any such Affiliate, actual or potential licensee or Sublicensee, employee, consultant or agent agrees to be bound by terms of confidentiality and non-use comparable in scope to those set forth in this Article 6; and

(f) disclosure to Third Parties in connection with due diligence or similar investigations by such Third Parties, and disclosure to potential Third Party investors in confidential financing documents, provided, in each case, that any such Third Party agrees to be bound by reasonable obligations of confidentiality and non-use.

Notwithstanding the foregoing, in the event a Party is required to make a disclosure of the other Party's Confidential Information pursuant to Section 6.3(c) or Section 6.3(d), it will, except where impracticable, give reasonable advance notice to the other Party of such disclosure and use efforts to secure confidential treatment of such information at least as diligent as such Party would use to protect its own confidential information, but in no event less than reasonable efforts. In any event, the Parties agree to take all reasonable action to avoid disclosure of Confidential Information hereunder.

6.4 Public Announcements.

(a) **Press Releases.** Except as required by applicable securities laws (including disclosure requirements of the U.S. Securities and Exchange Commission ("**SEC**") or any stock exchange on which securities issued by a Party or its Affiliates are traded), Licensee shall not make any other public announcement concerning this Agreement or the subject matter hereof without the prior written consent of Licensor, which shall not be unreasonably withheld or delayed; provided that Licensee may make any public statement, or issue press releases, so long as any such public statement or press release is not inconsistent with prior public disclosures or public statements approved by Licensor pursuant to this Section 6.4 and which do not reveal non-public information about Licensor. In the event of a required public announcement, to the extent practicable under the circumstances, Licensee making such announcement shall provide Licensor with a copy of the proposed text of such announcement sufficiently in advance of the scheduled release to afford Licensor a reasonable opportunity to review and comment upon the proposed text.

(b) **Filing of this Agreement.** The Parties shall coordinate in advance with each other in connection with the filing of this Agreement (including redaction of certain provisions of this Agreement) with the SEC or any stock exchange or governmental agency on which securities issued by a Party or its Affiliate are traded, and each Party will use reasonable efforts to seek confidential treatment for the terms proposed to be redacted; provided that each Party will ultimately retain control over what information to disclose to the SEC or any stock exchange or other governmental agency, as the case may be, and provided further that the Parties will use their reasonable efforts to file redacted versions with any governing bodies which are consistent with redacted versions previously filed with any other governing bodies. Other than such obligation, neither Party (nor its Affiliates) will be obligated to consult with or obtain approval from the other Party with respect to any filings to the SEC or any stock exchange or other governmental agency.

6.5 Publication. During the Term, Licensee will submit to Licensor copies of each academic, scientific or medical publication or presentation proposed by Licensee that contains or refers to the Licensed Technology or relates to any Licensed Compound or Licensed Product at least 30 days in advance of submitting such proposed publication or presentation to a publisher or other Third Party. Licensor will notify Licensee in writing within 30 days after receipt of the proposed publication or presentation if Licensor wishes to: (a) remove its Confidential Information (including with respect to Licensor's compounds other than the Licensed Compound) from such proposed publication or presentation, in which event Licensee shall redact or otherwise modify the proposed publication or presentation to remove such Confidential Information of Licensor; or (b) request a reasonable delay in publication or presentation in order to protect patentable information, in which event Licensee shall delay the publication or presentation for a period of no more than 60 days to enable patent applications to be filed in accordance with this Agreement. For clarity, if Licensor fails to notify Licensee during the 30-day review period as provided this Section 6.5, Licensee shall be free to proceed with the proposed publication or presentation. With reasonable advance notice, Licensee may request, and Licensor shall reasonably cooperate with, Licensor's filing of a patent application mutually acceptable to the Parties to be promptly made related to, and in anticipation of, public disclosure of patentable information that contains or refers to the Licensed Technology or relates to any Licensed Compound or Licensed Product.

6.6 Prior Non-Disclosure Agreement. As of the Effective Date, the terms of this Article 6 shall supersede any prior non-disclosure, secrecy or confidentiality agreement between the Parties (or their Affiliates) dealing with the subject of this Agreement. Any information disclosed pursuant to any such prior agreement shall be deemed Confidential Information for purposes of this Agreement.

6.7 Equitable Relief. Given the nature of the Confidential Information and the competitive damage that would result to a Party upon unauthorized disclosure, use or transfer of its Confidential Information to any Third Party, the Parties agree that monetary damages would not be a sufficient remedy for any breach of this Article 6. In addition to all other remedies, a Party shall be entitled to specific performance and injunctive and other equitable relief as a remedy for any breach or threatened breach of this Article 6.

7. REPRESENTATIONS AND WARRANTIES; LIMITATION OF LIABILITY

7.1 Mutual Representations and Warranties. Each Party represents and warrants to the other that, as of the Effective Date:

- (a) It is duly organized and validly existing under the laws of its jurisdiction of incorporation or formation, and has full corporate or other 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 the person or persons executing this Agreement on its behalf has been duly authorized to do so by all requisite corporate or partnership action; and
- (c) This Agreement is legally binding upon it, enforceable in accordance with its terms, and does not conflict with any 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.

7.2 Additional Licensors Representations and Warranties. Licensors represents and warrants to Licensee, as of the Effective Date, as follows:

(a) Licensors (i) has the right to grant the License and the other rights that it purports to grant in Section 2.1; and (ii) has not granted any right to any Third Party that would conflict with the License or rights granted to Licensee hereunder;

(b) There are no agreements in effect as of the Effective Date between Licensors and a Third Party under which rights with respect to the Licensed Technology has been licensed to Licensors;

(c) To the knowledge of Licensors, no reexamination, reissue, interference, invalidity, opposition, post-grant, nullity or similar claim or proceeding is pending or threatened with respect to any Licensed Patent;

(d) Exhibit 1.15 attached hereto lists all AN143 Patents as of the Effective Date, Exhibit 1.22 attached hereto lists all AN352 Patents as of the Effective Date, Exhibit 1.29 attached hereto lists all AN659 Patents as of the Effective Date and Exhibit 1.5 attached hereto lists all 2A Patents as of the Effective Date;

(e) Licensors is not a party to any legal action, suit or proceeding relating to the Licensed Technology or any Licensed Compound or Licensed Product, nor has Licensors received any written communication from any Third Party, including any Regulatory Authority or other government agency, threatening such action, suit or proceeding; and

(f) Licensors is not debarred or disqualified under the United States Federal Food, Drug and Cosmetic Act or comparable Applicable Laws in the Territory, and it has not employed or used the services of any person who is debarred or disqualified in connection with activities relating to any Licensed Compound or Licensed Product.

7.3 Additional Licensee Representations and Warranties. Licensee represents and warrants to Licensors, as of the Effective Date, neither Licensee nor any of its Affiliates is debarred or disqualified under the United States Federal Food, Drug and Cosmetic Act or comparable Applicable Laws in the Territory.

7.4 Licensee Covenants. In addition to any covenants made by Licensee elsewhere in this Agreement, Licensee hereby covenants to Licensors as follows:

(a) during the Term, Licensee will not grant to any Third Party any license or other right with respect to any Licensed Compound, Licensed Product or Licensee Technology in derogation of the license and rights granted to Licensors hereunder;

(b) Licensee will not knowingly, during the Term, employ or use the services of any person who is debarred or disqualified in connection with activities relating to any Licensed Compound or Licensed Product; and in the event that Licensee becomes aware of the debarment

or disqualification or threatened debarment or disqualification of any person providing services to Licensee with respect to any activities relating to any Licensed Compound or Licensed Product, Licensee will immediately notify Licensor in writing and Licensee will cease employing, contracting with, or retaining any such person to perform any services relating to any Licensed Compound or Licensed Product;

(c) Licensee will not, in connection with the performance of its obligations under this Agreement, directly or indirectly through Third Parties, pay, promise or offer to pay, or authorize the payment of, any money or give any promise or offer to give, or authorize the giving of anything of value to a public official or entity or other person for purpose of obtaining or retaining business for or with, or directing business to, any person, including Licensee, nor will Licensee directly or indirectly promise, offer or provide any corrupt payment, gratuity, emolument, bribe, kickback, illicit gift or hospitality or other illegal or unethical benefit to a public official or entity or any other person in connection with the performance of Licensee's obligations under this Agreement;

(d) Licensee and its employees and contractors, in connection with the performance of Licensee's obligations under this Agreement, shall not cause Licensor to be in violation of the FCPA, Export Control Laws, or any other Applicable Laws, and shall not engage in activities that are adverse to U.S. national security interests;

(e) Licensee has in place an anti-corruption and anti-bribery policy and in connection with the performance of its obligations under this Agreement, Licensee shall comply and shall cause its and its Affiliates' employees to comply with Licensee's policy; and

(f) Licensee shall immediately notify Licensor if it has any information or suspicion that there may be a violation of the FCPA, Export Control Laws, or any other Applicable Laws in connection with the performance of its obligations under this Agreement.

7.5 Performance by Affiliates, Sublicensees and Subcontractors. The Parties recognize that each Party may perform some or all of its obligations or exercise some or all of its rights under this Agreement through one or more Affiliates or subcontractors or, in the case of Licensee, Sublicensees; *provided*, in each case, that (a) none of the other Party's rights hereunder are diminished or otherwise adversely affected as a result of such delegation or subcontracting, and (b) each such Affiliate, subcontractor or Sublicensee undertakes in writing obligations of confidentiality and non-use regarding Confidential Information and ownership of Inventions which are substantially the same as those undertaken by the Parties pursuant to Article 6 and Section 8.1; and *provided, further*, that such Party shall at all times be fully responsible for the performance and payment of such Affiliate, subcontractor or Sublicensee.

7.6 Disclaimer. Except as expressly set forth in this Agreement, THE TECHNOLOGY AND INTELLECTUAL PROPERTY RIGHTS PROVIDED BY EACH PARTY HEREUNDER AND THE ASSISTANCE TO BE PROVIDED BY ANY OF THE PARTIES TO THE OTHER HEREUNDER ARE PROVIDED "AS IS," AND EACH PARTY EXPRESSLY DISCLAIMS ANY AND ALL WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF DESIGN, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OBTAINING SUCCESSFUL RESULTS, NON-INFRINGEMENT OF THE INTELLECTUAL PROPERTY RIGHTS OF THIRD PARTIES, OR ARISING FROM A COURSE OF DEALING, USAGE OR TRADE PRACTICES.

7.7 Limitation of Liability. EXCEPT FOR PAYMENTS UNDER ARTICLE 4, OR LIABILITY FOR BREACH OF ARTICLE 6, NEITHER PARTY SHALL BE ENTITLED TO RECOVER FROM THE OTHER PARTY ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES IN CONNECTION WITH THIS AGREEMENT OR ANY LICENSE GRANTED HEREUNDER; *provided, however,* that this Section 7.7 shall not be construed to limit either Party's indemnification obligations under Article 10.

8. INTELLECTUAL PROPERTY

8.1 Ownership of Inventions. As between the Parties, Licensor is the owner of all right, title and interest in and to the Licensed Technology, and Licensee is the owner of all right, title and interest in and to the Licensee Technology. A Party shall have and retain all right, title and interest in any Invention made solely by one or more employees or agents of such Party and or its Affiliates or other persons acting under its authority; provided that all right, title and interest in and to any New Compound IP shall be solely owned by Licensor (and included in Licensed Technology subject to the License as applicable), and Licensee hereby assigns to Licensor all right, title and interest in and to the New Compound IP. The Parties shall jointly own rights in any Invention made jointly by one or more employees or agents of each Party and/or its Affiliates or other persons acting under its authority ("**Joint Inventions**") and Patent rights therein ("**Joint Patents**"), in each case excluding any such Inventions and Patents in the New Compound IP. Subject to the rights and licenses granted under this Agreement, each Party shall have the right to practice and use, and grant licenses to practice and use, any Joint Inventions and Joint Patents without the other Party's consent and has no duty to account to the other Party for such practice, use or license, and each Party hereby waives any right it may have under the laws of any country to require any such consent or accounting.

8.2 Patent Prosecution and Maintenance. For purposes of this Section 8.2, the terms "prosecute," "prosecuting" and "prosecution," when used in reference to any Patent, shall be deemed to include, without limitation, control of any interferences, reissue proceedings, post-grant proceedings, oppositions and reexaminations with respect to such Patent, subject to Sections 8.3(d) and 8.4.

(a) Licensed Patents.

(i) Licensor shall have the first right, but not the obligation, at Licensee's expense (including attorneys' fees), to control the preparation, filing, prosecution (including any interferences, reissue proceedings, post-grant proceedings, oppositions and reexaminations) and maintenance of the Licensed Patents (excluding its interest in any Joint Patents but including any Patents within the New Compound IP). Licensee shall compensate such expenses pursuant to a shared service agreement between the Parties. Licensor shall keep Licensee reasonably informed of progress with regard to the preparation, filing, prosecution and maintenance of Licensed Patents, including the countries in the Territory in which it intends to file, maintain or abandon a given Licensed Patent. Licensor will notify Licensee of all warning letters, conflict proceedings, interferences, reissue proceedings, post-grant proceedings,

oppositions and reexaminations or any other material challenge relating to a given Licensed Patent. Licensor will consult with, and consider in good faith, the requests and suggestions of, Licensee with respect to strategies for filing and prosecuting such Licensed Patents. In the event that Licensor desires to abandon or cease prosecution or maintenance of any Licensed Patent, Licensor shall provide reasonable prior written notice to Licensee of such intention (which notice shall, in any event, be given no later than 60 days prior to the next deadline for any action that may be taken with respect to such Licensed Patent with the applicable patent office), and upon Licensee's written election provided no later than 30 days after such notice from Licensor, Licensor shall continue prosecution and/or maintenance of such Licensed Patent at Licensee's direction and expense. If Licensee does not provide such election within 30 days after such notice from Licensor, Licensor may continue prosecution and maintenance of such Licensed Patent or discontinue prosecution and maintenance of such Licensed Patent.

(ii) Upon written notice to Licensor, Licensee shall have the right to elect to control the preparation, filing, prosecution and maintenance of: (i) the AN352 Patents, AN659 Patents, and 2A Patents from and after [***] [(***)] months from the Effective Date, and (ii) the AN143 Patents if (a) Licensor ceases development of its olorinab compound for a period of [***] [(***)] years, so long as Licensor is not in a partnership or in active partnering discussions with respect to olorinab, or (b) an AN143 Product is granted Regulatory Approval (such elected Patents collectively, the "**Elected Patents**"). Upon such election, Licensee shall have the first right, but not the obligation, at Licensee's expense (including attorneys' fees), to control the preparation, filing, prosecution (including any interferences, reissue proceedings, post-grant proceedings, oppositions and reexaminations) and maintenance of the Elected Patents. In the event that Licensee desires to abandon or cease prosecution or maintenance of any Elected Patent, Licensee shall provide reasonable prior written notice to Licensor of such intention (which notice shall, in any event, be given no later than [***] days prior to the next deadline for any action that may be taken with respect to such Elected Patent with the applicable patent office), and upon such notice, Licensor shall have the option, but not the obligation, to prepare, file, prosecute and maintain such Elected Patent at its sole cost and expense. In addition to the Elected Patents, the Parties may mutually agree to transfer control of preparation, filing, prosecution and maintenance of any Licensed Patent from the Licensor to Licensee.

(b) **Licensee Patents.** Licensee shall have the first right, but not the obligation, at its own expense, to control the preparation, filing, prosecution (including any interferences, reissue proceedings and reexaminations) and maintenance of the Licensee Patents (excluding its interest in any Joint Patents). Licensee shall keep Licensor reasonably informed of progress with regard to the preparation, filing, prosecution and maintenance of Licensee Patents, including the countries in the Territory in which it intends to file, maintain or abandon a given Licensee Patent. Licensee will notify Licensor of all warning letters, conflict proceedings, interferences, reissue proceedings, post-grant proceedings, oppositions and reexaminations or any other material challenge relating to a given Licensee Patent. Licensee will consult with, and consider in good faith, the requests and suggestions of, Licensor with respect to strategies for filing and prosecuting such Licensee Patents. In the event that Licensee desires to abandon or cease prosecution or maintenance of any Licensee Patent, Licensee shall provide reasonable prior written notice to Licensor of such intention (which notice shall, in any event, be given no later than 60 days prior to the next deadline for any action that may be taken with respect to such Licensee Patent with the applicable patent office), and upon Licensor's written election provided no later than 30 days after

such notice from Licensee, Licensee shall continue prosecution or maintenance of such Licensee Patent at Licensor's direction and expense. If Licensor does not provide such election within 30 days after such notice from Licensee or fails to pay for prosecution or maintenance of any Licensee Patent with respect to which it has previously made such election, Licensee may, in its sole discretion, continue prosecution and maintenance of such Licensee Patent or discontinue prosecution and maintenance of such Licensee Patent.

(c) Joint Patents. The Parties shall discuss a mutually acceptable filing and prosecution strategy for any Joint Patents within 45 days of receiving the invention disclosure for the corresponding Joint Invention, provided that absent such agreement, Licensor shall control the prosecution and maintenance of any Joint Patents in the same manner as Licensed Patents in accordance with Section 8.2(a). Unless the Parties' agree in writing on an alternative arrangement, Licensor shall be responsible for all costs and expenses of filing, prosecution and maintenance of Joint Patents.

(d) Cooperation of the Parties. Each Party agrees to cooperate fully in the preparation, filing, prosecution and maintenance of Licensed Patents, Licensee Patents and Joint Patents under this Section 8.2 and in the obtaining and maintenance of any patent extensions, supplementary protection certificates and the like with respect thereto respectively at its own costs. Such cooperation includes, but is not limited to: (a) executing all papers and instruments, or requiring its employees or contractors, to execute such papers and instruments, so as to enable the other Party to apply for and to prosecute patent applications in any country as permitted by this Section 8.2; and (b) promptly informing the other Party of any matters coming to such Party's attention that may affect the preparation, filing, prosecution or maintenance of any such patent applications.

8.3 Infringement by Third Parties.

(a) Notice. In the event that either Licensor or Licensee becomes aware of any infringement or threatened infringement by a Third Party of any Licensed Patent, Licensee Patent or Joint Patent, it shall notify the other Party in writing to that effect.

(b) Licensed Patents and Joint Patents.

(i) Licensor shall have the first right, but not the obligation, to bring and control any action or proceeding with respect to infringement of any Licensed Patent (including any Patents within the New Compound IP) or any Joint Patent at its own expense and by counsel of its own choice. Licensee shall have the right, at its own expense, to be represented in any such action by counsel of its own choice, and Licensor and its counsel will reasonably cooperate with Licensee and its counsel in strategizing, preparing, and litigating any such action or proceeding. If Licensor fails to bring any such action or proceeding with respect to infringement of any Licensed Patent or Joint Patent within 90 days following the notice of alleged infringement, Licensee shall have the right to bring and control any such action at its own expense and by counsel of its own choice, and Licensor shall have the right, at its own expense, to be represented in any such action by counsel of its own choice. At Licensee's request, Licensor agrees to join any such action brought by Licensee if necessary. The Parties may mutually agree to transfer control of enforcement of any of the Licensed Patents or Joint Patents from Licensor to Licensee.

(ii) Notwithstanding Section 8.3(b)(i), if under Section 8.2(a)(ii) Licensee has taken control of the preparation, filing, prosecution and maintenance of the Elected Patents, Licensee shall have the first right, but not the obligation, to bring and control any action or proceeding with respect to infringement of any Elected Patent (including Licensed Patents or Patents within the New Compound IP or any Joint Patents that are Elected Patents) at its own expense and by counsel of its own choice. Licensor shall have the right, at its own expense, to be represented in any such action by counsel of its own choice, and Licensee and its counsel will reasonably cooperate with Licensor and its counsel in strategizing, preparing, and litigating any such action or proceeding. At Licensee's request, Licensor agrees to join any such action brought by Licensee if necessary. If Licensee fails to bring any such action or proceeding with respect to infringement of any Elected Patent within [***] days following the notice of alleged infringement, Licensor shall have the right to bring and control any such action at its own expense and by counsel of its own choice, and Licensee shall have the right, at its own expense, to be represented in any such action by counsel of its own choice. Further, if under Section 8.2(a)(ii) Licensee has taken control of the preparation, filing, prosecution and maintenance of the Elected Patents, each Party shall reasonably cooperate to avoid making statements or taking actions in connection with patent prosecution or litigation of any infringement action that would be in derogation of, in the case of Licensee, the Elected Patents, and in the case of Licensor, Patents covering Licensor's compounds other than the Licensed Compounds.

(c) **Licensee Patents.** Licensee shall have the first right, but not the obligation, to bring and control any action or proceeding with respect to infringement of any Licensee Patent (excluding its interest in any Joint Patents) at its own expense and by counsel of its own choice, and Licensor shall have the right, at its own expense, to be represented in any such action by counsel of its own choice. If Licensee fails to bring any such action or proceeding with respect to infringement of any Licensee Patent within [***] days following the notice of alleged infringement, Licensor shall have the right to bring and control any such action at its own expense and by counsel of its own choice, and Licensee shall have the right, at its own expense, to be represented in any such action by counsel of its own choice.

(d) **Cooperation; Award.** In the event a Party brings an infringement action in accordance with this Section 8.3, the other Party shall cooperate fully, including, if required to bring such action, the furnishing of a power of attorney or being named as a party. Neither Party shall enter into any settlement or compromise of any action under this Section 8.3 which would in any manner alter, diminish, or be in derogation of the other Party's rights under this Agreement without the prior written consent of such other Party, which shall not be unreasonably withheld. Except as otherwise agreed by the Parties in connection with a cost-sharing arrangement, any recovery realized by a Party as a result of any action or proceeding pursuant to this Section 8.3, whether by way of settlement or otherwise, shall be applied first to reimburse the Parties' documented out-of-pocket legal expenses relating to the action or proceeding, and any remaining amounts shall be retained by the Party that brought and controlled such action; *provided, however*, that any recovery realized by Licensee as a result of any action or proceeding brought and controlled by Licensee (after reimbursement of the Parties' documented out-of-pocket legal expenses relating to the action or proceeding) shall be treated as Net Sales for purposes of Section 4.1.

8.4 Infringement of Third Party Rights. Each Party shall promptly notify the other in writing of any allegation by a Third Party that the activity of either Party pursuant to this Agreement infringes or may infringe the intellectual property rights of such Third Party. Neither party shall have the right to settle any patent infringement litigation under this Section 8.4 in a manner that diminishes the rights or interests of the other Party without the written consent of such other Party (which shall not be unreasonably withheld).

8.5 Marking. To the extent required by Applicable Laws, Licensee shall, and shall cause its Affiliates and Sublicensees to, mark all Licensed Products sold with the number of each issued Licensed Patent that applies to such Licensed Product.

8.6 Trademarks and Domain Names. Licensee shall own and be responsible for all trademarks, trade names, branding, logos or domain names related to Licensed Products or the company name “Longboard” in the applicable Field in the Territory, and will be responsible for selecting, registering, defending, and maintaining the same at Licensee’s sole cost and expense. Notwithstanding the foregoing, the Parties agree that Licensee shall not own or be responsible for the intent-to-use trademark applications under serial numbers 90232096, 90232106, and 90279251, and any other intent-to-use applications as the Parties may mutually agree, until Licensor files the Amendment to Allege Use or the Allegation of Use for such applications. The Parties further agree that upon written request, Licensor shall promptly transfer (i) the trademarks or trademark applications described in, and subject to, the preceding sentence, and (ii) the domain names including the company name Longboard to Licensee.

9. TERM; TERMINATION

9.1 Term. The term of this Agreement (the “*Term*”) shall commence on the Effective Date, and unless terminated earlier as provided in this Article 9, shall expire upon the expiration of all payment obligations of Licensee hereunder.

9.2 Termination.

(a) Material Breach. A Party shall have the right to terminate this Agreement upon written notice to the other Party if such other Party is in material breach of this Agreement and has not cured such breach within 60 days (or 30 days with respect to any payment breach) after notice from the terminating Party requesting cure of the breach. Any such termination shall become effective at the end of such 60-day (or 30-day with respect to any payment breach) period unless the breaching Party has cured such breach prior to the end of such period or if not curable within such 60-day period, has taken and continues to take good faith steps to commence the cure and has cured such breach within 120 days after notice from the terminating Party requesting cure of the breach (or such later date as agreed in writing by the Parties). Notwithstanding the foregoing, if Licensee is in material breach of its obligations under Section 3.6 with respect to a Licensed Product Family, Licensor’s right to terminate this Agreement for such material breach shall be limited to a termination of this Agreement solely with respect to such Licensed Product Family.

(b) Patent Challenge. Licensor shall have the right to terminate this Agreement immediately upon written notice to Licensee if Licensee or any of its Affiliates or

Sublicensees, directly or indirectly through any Third Party, commences any interference or opposition proceeding with respect to, challenges the validity or enforceability of, or opposes any extension of, or the grant of a supplementary protection certificate with respect to, any Licensed Patent.

(c) **Termination by Licensee.** Licensee may terminate this Agreement either with respect to a Licensed Product Family or in its entirety for any reason upon 120 days' prior written notice to Licensor.

(d) **Bankruptcy.** A Party shall have the right to terminate this Agreement upon written notice to the other Party upon the bankruptcy, dissolution or winding up of such other Party, or the making or seeking to make or arrange an assignment for the benefit of creditors of such other Party, or the initiation of proceedings in voluntary or involuntary bankruptcy against such other Party, or the appointment of a receiver or trustee of such other Party's property that is not discharged within 30 days.

9.3 Effect of Expiration or Termination.

(a) **Effect of Expiration.** Upon expiration (but not earlier termination) of this Agreement, all rights and obligations of the Parties under this Agreement shall terminate, except as provided elsewhere in this Section 9.3 or in Section 9.4.

(b) **Effect of Termination.** Upon any termination of this Agreement with respect to a Licensed Product Family (such Licensed Product Family or, in the case of a termination of the entire Agreement, each Licensed Product Family, a "***Terminated Product***"), all rights and obligations of the Parties under this Agreement with respect to the Terminated Product shall terminate, except as provided elsewhere in this Section 9.3 or in Section 9.4; *provided* that if this Agreement is terminated by Licensor pursuant to Section 9.2, any sublicense granted to a Sublicensee that is not in breach under the applicable sublicense (and whose actions or omissions did not result in a breach by Licensee giving rise to Licensor's right of termination) will continue as a direct license from Licensor so long as the Sublicensee makes all payments to Licensor required under this Agreement.

(c) **Additional Effects of Termination.** Upon any termination of this Agreement with respect to a Licensed Product Family or in its entirety, except termination of this Agreement by Licensee under Section 9.2(a), the following provisions shall apply:

(i) Licensee shall, and it hereby does, effective as of such termination, grant to Licensor an exclusive, royalty-free, fully-paid, irrevocable, perpetual license, with the right to sublicense through multiple tiers of sublicense, under the Licensee Technology, to research, develop, manufacture, have manufactured, use, market, distribute, import, export, offer for sale, promote, sell and have sold the Terminated Products and the applicable Licensed Compounds in the applicable Field.

(ii) Licensee shall, and it hereby does, effective as of such termination, assign to Licensor all of Licensee's right, title and interest in and to any and all Terminated Product-specific trademarks used by Licensee and its Affiliates in the Territory, including all goodwill therein, and Licensee shall promptly take such actions and execute such instruments, assignments and documents as may be necessary to effect, evidence, register and record such assignment, at [***]'s cost.

(iii) As promptly as practicable (and in any event within [***] days) after such termination, Licensee shall: (A) to the extent not previously provided to Licensor, deliver to Licensor true, correct and complete copies of all regulatory filings and registrations (including Regulatory Approvals) for Terminated Products in the applicable Field in the Territory, and disclose to Licensor all Licensee Know-How (including all preclinical and clinical data) not previously disclosed to Licensor; (B) transfer or assign, or cause to be transferred or assigned, to Licensor or its designee (or to the extent not so assignable, take all reasonable actions to make available to Licensor or its designee the benefits of) all regulatory filings and registrations (including Regulatory Approvals) for Terminated Products in the applicable Field in the Territory, whether held in the name of Licensee or its Affiliate; and (C) take such other actions and execute such other instruments, assignments and documents as may be necessary to effect, evidence, register and record the transfer, assignment or other conveyance of rights under this Section 9.3(c)(iii) to Licensor.

(iv) After such termination, at Licensor's request and expense, Licensee shall assign to Licensor any and all agreements to which Licensee, or its Affiliate, and a Third Party are parties, and are solely related to the development, commercialization and manufacturing activities conducted in connection with the Terminated Product prior to such termination, or if such assignment is not permitted under the relevant agreement, (A) grant to Licensor other rights to provide to Licensor the benefit of such non-assignable agreement, at [***]'s expense, to the extent permitted under the terms of such non-assignable agreement; or (B) to the extent not permitted under the terms of such non-assignable agreement, the Parties shall discuss in good faith an alternative solution to enable Licensor to receive, at [***]'s expense, the benefit of the terms of such non-assignable agreement.

(v) Licensee shall, as directed by Licensor, at [***]'s expense, use good faith efforts to either wind-down any ongoing development activities of Licensee and its Affiliates and Sublicensees with respect to any Terminated Products in the applicable Field in the Territory in an orderly fashion or promptly transfer such development activities to Licensor or its designee, in compliance with all Applicable Laws.

(d) **Confidential Information.** Upon expiration or termination of this Agreement in its entirety, except to the extent that a Party retains a license from the other Party as provided in this Article 9, each Party shall promptly return to the other Party, or delete or destroy, all relevant records and materials in such Party's possession or control containing Confidential Information of the other Party; provided that such Party may keep one copy of such materials for archival purposes subject to continuing confidentiality obligations under this Agreement.

9.4 Accrued Obligations; Survival. Neither expiration nor any termination of this Agreement shall relieve either Party of any obligation or liability accruing prior to such expiration or termination, nor shall expiration or any termination of this Agreement preclude either Party from pursuing all rights and remedies it may have under this Agreement, at law or in equity, with respect to breach of this Agreement. In addition, the Parties' rights and obligations under Section 2.3(b) (Negative Covenants), Section 2.4 (No Implied Licenses); Section 4.2 (Royalty Term)

(solely with respect to the conversion of the license to a fully-paid, irrevocable and perpetual license); Section 5.2 (Exchange Rate; Manner and Place of Payment) through Section 5.4 (Late Payments) (in each case, solely to the extent of accrued obligations as contemplated under this Section 9.4); Section 6.1 (Confidential Information) through Section 6.4 (Public Announcements); Section 6.6 (Prior Non-Disclosure Agreement); Section 6.7 (Equitable Relief); Section 7.5 (Disclaimer); Section 7.6 (Limitation of Liability), Section 8.1 (Ownership of Inventions); Section 8.2(c) (Joint Patents); Section 8.2(d) (Cooperation of the Parties); Section 8.3 (Infringement by Third Parties) through Section 8.4 (Infringement of Third Party Rights) (in each case, with respect to proceedings to the extent relating to events occurring prior to the effective date of termination); Section 8.6 (Trademarks and Domain Names); Section 9.3 (Effects of Expiration or Termination); Section 9.4 (Accrued Obligations; Survival); Section 10.1 (Indemnification of Licensor) through Section 10.3 (Procedure); Article 1 (Definitions), Article 11 (Dispute Resolution) and Article 12 (Miscellaneous) of this Agreement shall survive expiration or any termination of this Agreement.

9.5 Rights Upon Bankruptcy. All rights and licenses granted under or pursuant to this Agreement are, and shall otherwise be deemed to be, for purposes of Section 365(n) of Title 11 of the United States Code and other similar laws in any jurisdiction outside the U.S. (collectively, the “**Bankruptcy Laws**”), licenses of rights to be “intellectual property” as defined under the Bankruptcy Laws. If a case is commenced during the Term by or against a Party under the Bankruptcy Laws then, unless and until this Agreement is rejected as provided in such Bankruptcy Laws, such Party (in any capacity, including debtor-in-possession) and its successors and assigns (including a trustee) shall perform all of the obligations provided in this Agreement to be performed by such Party. If a case is commenced during the Term by or against a Party under the Bankruptcy Laws, this Agreement is rejected as provided in the Bankruptcy Laws and the other Party elects to retain its rights hereunder as provided in the Bankruptcy Laws, then the Party subject to such case under the Bankruptcy Laws (in any capacity, including debtor-in-possession) and its successors and assigns (including a Title 11 trustee), shall provide to the other Party copies of all Information necessary for such other Party to prosecute, maintain and enjoy its rights under the terms of this Agreement promptly upon such other Party’s written request therefor. All rights, powers and remedies of the non-bankrupt Party as provided herein are in addition to and not in substitution for any and all other rights, powers and remedies now or hereafter existing at law or in equity (including, without limitation, the Bankruptcy Laws) in the event of the commencement of a case by or against a Party under the Bankruptcy Laws.

10. INDEMNIFICATION

10.1 Indemnification of Licensor. Licensee shall indemnify and hold harmless each of Licensor and its Affiliates and their respective directors, officers, employees, consultants, agents and successors and assigns of any of the foregoing (the “**Licensor Indemnitees**”) from and against any and all losses, damages, liabilities, expenses and costs, including reasonable legal expense and attorneys’ fees (“**Losses**”), incurred by any Licensor Indemnitee as a result of any claims, demands, actions, suits or proceedings brought by a Third Party (“**Third Party Claims**”) arising directly or indirectly out of: (a) the practice by Licensee or its Affiliates or Sublicensees of the License; (b) the development, manufacture, use, handling, storage, sale or other disposition of Licensed Compounds and Licensed Products by Licensee or its Affiliates or Sublicensees; (c) the negligence or willful misconduct of any Licensee Indemnitee; or (d) any breach of any representations, warranties or covenants by Licensee under this Agreement; except, in each case, to the extent such Third Party Claims fall within the scope of the indemnification obligations of Licensor set forth in Section 10.2.

10.2 Indemnification of Licensee. Licensor shall indemnify and hold harmless each of Licensee and its Affiliates and their respective directors, officers, employees, consultants, agents and successors and assigns of any of the foregoing (the “*Licensee Indemnitees*”), from and against any and all Losses incurred by any Licensee Indemnitee as a result of any Third Party Claims arising directly or indirectly out of: (a) the negligence or willful misconduct of any Licensor Indemnitee; or (b) any breach of any representations, warranties or covenants by Licensor under this Agreement; except, in each case, to the extent such Third Party Claims fall within the scope of the indemnification obligations of Licensee set forth in Section 10.1.

10.3 Procedure. A Licensor Indemnitee or Licensee Indemnitee that intends to claim indemnification under this Article 10 (the “*Indemnitee*”) shall promptly notify the indemnifying Party (the “*Indemnitor*”) in writing of any Third Party Claim, in respect of which the Indemnitee intends to claim such indemnification, and the Indemnitor shall have sole control of the defense and/or settlement thereof. The indemnity arrangement in this Article 10 shall not apply to amounts paid in settlement of any action with respect to a Third Party Claim, if such settlement is effected without the consent of the Indemnitor, which consent shall not be withheld or delayed unreasonably. The failure to deliver written notice to the Indemnitor within a reasonable time after the commencement of any action with respect to a Third Party Claim shall only relieve the Indemnitor of its indemnification obligations under this Article 10 if and to the extent the Indemnitor is actually prejudiced thereby. The Indemnitee shall cooperate fully with the Indemnitor and its legal representatives in the investigation of any action with respect to a Third Party Claim covered by this indemnification.

10.4 Insurance. Each Party, at its own expense, shall maintain product liability and other appropriate insurance (or self-insure) in an amount consistent with sound business practice and reasonable in light of its obligations under this Agreement during the Term. Each Party shall provide a certificate of insurance (or evidence of self-insurance) evidencing such coverage to the other Party upon request.

11. DISPUTE RESOLUTION

11.1 Disputes. Subject to Section 11.3, upon the written request of either Party to the other Party, any claim, dispute, or controversy arising out of or relating to this Agreement, including any question regarding its formation, existence, validity, interpretation, performance, breach, termination or enforceability thereof, or any dispute regarding non-contractual obligations arising out of or relating to it (each, a “*Dispute*”) will be referred to the Executive Officers (or such Executive Officer’s designee with decision-making authority) for attempted resolution. In the event such executives are unable to resolve such Dispute within 30 days after the initial written request, then, upon the written demand of either Party, the Dispute shall be subject to arbitration, as provided in Section 11.2, except as expressly set forth in Section 11.3.

11.2 Arbitration.

(a) **Claims.** Subject to Section 11.3 below, any Dispute that is not resolved under Section 11.1 within 30 days after a Party's initial written request for resolution, shall be resolved by final and binding arbitration before a panel of three neutral experts with relevant industry experience. The arbitration proceeding shall be administered by the American Arbitration Association (the "AAA") in accordance with its then existing arbitration rules or procedures regarding commercial or business disputes, and the panel of arbitrators shall be selected in accordance with such rules. The arbitration and all associated discovery proceedings and communications shall be conducted in English, and the arbitration shall be held in San Diego, California. Except to the extent necessary to confirm an award or as may be required by law, neither a Party nor an arbitrator may disclose the existence, content, or results of arbitration without the prior written consent of both Parties.

(b) **Arbitrators' Award.** The arbitrators shall, within 15 days after the conclusion of the arbitration hearing, issue a written award and statement of decision describing the essential findings and conclusions on which the award is based, including the calculation of any damages awarded. The decision or award rendered by the arbitrators shall be final and non-appealable, and judgment may be entered upon it in any court of competent jurisdiction. Either Party may apply for interim injunctive relief with the arbitrators until the arbitration award is rendered or the controversy is otherwise resolved. The arbitrators shall be authorized to award compensatory damages, but shall not be authorized (i) to award non-economic damages, (ii) to award punitive damages or any other damages expressly excluded under this Agreement, or (iii) to reform, modify or materially change this Agreement or any other agreements contemplated hereunder; provided, however, that the damage limitations described in subsections (i) and (ii) of this sentence will not apply if such damages are statutorily imposed.

(c) **Costs.** Each Party shall bear its own attorney's fees, costs, and disbursements arising out of the arbitration, and shall pay an equal share of the fees and costs of the arbitrator; *provided, however*, that the arbitrator shall be authorized to determine whether a Party is the prevailing party, and if so, to award to that prevailing party reimbursement for any or all of its reasonable attorneys' fees, costs and disbursements (including, for example, expert witness fees and expenses, photocopy charges, travel expenses, etc.), and/or the fees and costs of the AAA and the arbitrator.

11.3 Court Actions. Nothing contained in this Agreement shall deny either Party the right to seek, upon good cause, injunctive or other equitable relief from a court of competent jurisdiction in the context of an emergency or prospective irreparable harm, and such an action may be filed and maintained notwithstanding any ongoing dispute resolution discussions or arbitration proceedings. In addition, either Party may bring an action in any court of competent jurisdiction to resolve disputes pertaining to the validity, construction, scope, enforceability, infringement or other violations of Patents or other intellectual property rights, and no such claim shall be subject to arbitration pursuant to Section 11.2.

12. MISCELLANEOUS

12.1 Governing Law. This Agreement and any disputes, claims, or actions related thereto shall be governed by and construed in accordance with the laws of the State of New York, U.S., without regard to the conflicts of law provisions thereof.

12.2 Entire Agreement; Amendment. This Agreement, including the Exhibits and Appendices hereto, together with the Development Plan between the Parties, sets forth all of the agreements and understandings between the Parties with respect to the subject matter hereof and thereof, and supersedes and terminates all prior agreements and understandings between the Parties with respect to the subject matter hereof and thereof. There are no other agreements or understandings with respect to the subject matter hereof, either oral or written, between the Parties. Except as expressly set forth in this Agreement, no subsequent amendment, modification or addition to this Agreement shall be binding upon the Parties unless reduced to writing and signed by the respective authorized officers of the Parties.

12.3 Relationship Between the Parties. The Parties' relationship, as established by this Agreement, is solely that of independent contractors. This Agreement does not create any partnership, joint venture or similar business relationship between the Parties. Neither Party is a legal representative of the other Party, and neither Party can assume or create any obligation, representation, warranty or guarantee, express or implied, on behalf of the other Party for any purpose whatsoever.

12.4 Non-Waiver. The failure of a Party to insist upon strict performance of any provision of this Agreement or to exercise any right arising out of this Agreement shall neither impair that provision or right nor constitute a waiver of that provision or right, in whole or in part, in that instance or in any other instance. Any waiver by a Party of a particular provision or right shall be in writing, shall be as to a particular matter and, if applicable, for a particular period of time and shall be signed by such Party.

12.5 Assignment. Except as expressly provided hereunder, neither this Agreement nor any rights or obligations hereunder may be assigned or otherwise transferred by either Party without the prior written consent of the other Party (which consent shall not be unreasonably withheld); *provided, however*, that either Party may assign this Agreement and its rights and obligations hereunder without the other Party's consent:

(a) in connection with the transfer or sale of all or substantially all of the business of such Party to which this Agreement relates to a Third Party, whether by merger, sale of stock, sale of assets or otherwise; *provided, however*, that (i) in the event of such a transaction (whether this Agreement is actually assigned or is assumed by the acquiring party by operation of law (*e.g.*, in the context of a reverse triangular merger)), intellectual property rights of the acquiring party to such transaction (if other than one of the Parties to this Agreement) (A) existing prior to the transaction, or (B) developed after the transaction without use of such Party's intellectual property, shall not be included in the technology licensed hereunder or otherwise subject to this Agreement, and (ii) in the event such transfer or sale includes any Patents directed to both an AN143 Compound (or AN143 Product) and one or more other compounds or products other than an AN143 Compound (or AN143 Product), Licensor shall provide Licensee with a signed writing of the acquiring Party's consent to be bound by Section 2.1(a) of this Agreement, including the covenant not to sue therein; or

(b) to an Affiliate, provided that the assigning Party shall remain liable and responsible to the non-assigning Party hereto for the performance and observance of all such duties and obligations by such Affiliate, including, for the avoidance of doubt, the covenants not to sue granted in Section 2.1.

The rights and obligations of the Parties under this Agreement—including, for the avoidance of doubt, the covenants not to sue granted in Section 2.1—shall be binding upon and inure to the benefit of the successors and permitted assigns of the Parties, and the name of a Party appearing herein will be deemed to include the name of such Party's successors and permitted assigns to the extent necessary to carry out the intent of this Section 12.5. Any assignment not in accordance with this Agreement shall be void.

12.6 No Third Party Beneficiaries. This Agreement is neither expressly nor impliedly made for the benefit of any party other than those executing it.

12.7 Severability. If, for any reason, any part of this Agreement is adjudicated invalid, unenforceable or illegal by a court of competent jurisdiction, such adjudication shall not affect or impair, in whole or in part, the validity, enforceability or legality of any remaining portions of this Agreement. All remaining portions shall remain in full force and effect as if the original Agreement had been executed without the invalidated, unenforceable or illegal part. The Parties shall use their commercially reasonable efforts to replace the invalid, illegal or unenforceable provision(s) with valid, legal and enforceable provision(s) in a way that, to the extent practicable and legally permissible, implements the original intent of the Parties.

12.8 Notices. Any notice to be given under this Agreement must be in writing and delivered either in person, by any method of mail (postage prepaid) requiring return receipt, or by overnight courier or electronic mail confirmed thereafter by any of the foregoing, to the Party to be notified at its address(es) given below, or at any address such Party has previously designated by prior written notice to the other. Notice shall be deemed sufficiently given for all purposes upon the earliest of: (a) the date of actual receipt; (b) if delivered by overnight courier, the three Business Days after delivery; or (c) if sent by electronic mail, upon electronic confirmation of receipt.

if to Licensor: Arena Pharmaceuticals Inc.
6154 Nancy Ridge Drive
San Diego, CA 92121
Attn: General Counsel
Email: [***]

with a copy to: Cooley LLP
4401 Eastgate Mall
San Diego, CA 92121 USA
Attention: L. Kay Chandler
Email: kchandler@cooley.com

if to Licensee: Longboard Pharmaceuticals, Inc.
6154 Nancy Ridge Drive
San Diego, CA 92121
Attn: Chief Executive Officer
Email: [***]

with a copy to: Cooley LLP
4401 Eastgate Mall
San Diego, CA 92121 USA
Attention: L. Kay Chandler
Email: kchandler@cooley.com

12.9 Force Majeure. Each Party shall be excused from liability for the failure or delay in performance of any obligation under this Agreement (other than the obligation to make payment when due) by reason of any event beyond such Party's reasonable control including acts of God, fire, flood, explosion, earthquake, or other natural forces, epidemic, pandemic, war, civil unrest, acts of terrorism, accident, destruction or other casualty, any governmental action in response to any of the foregoing, or any other event similar to those enumerated above. Such excuse from liability shall be effective only to the extent and duration of the event(s) causing the failure or delay in performance and provided that the Party has not caused such event(s) to occur. Notice of a Party's failure or delay in performance due to force majeure must be given to the other Party within [***] days after its occurrence. All delivery dates under this Agreement that have been affected by force majeure shall be tolled for the duration of such force majeure. In no event shall any Party be required to prevent or settle any labor disturbance or dispute.

12.10 Interpretation. The headings of clauses contained in this Agreement preceding the text of the sections, subsections and paragraphs hereof are inserted solely for convenience and ease of reference only and shall not constitute any part of this Agreement, or have any effect on its interpretation or construction. All references in this Agreement to the singular shall include the plural where applicable. Unless otherwise specified, references in this Agreement to any Article shall include all Sections, subsections and paragraphs in such Article, references to any Section shall include all subsections and paragraphs in such Section, and references in this Agreement to any subsection shall include all paragraphs in such subsection. The word "including" and similar words means including without limitation. The word "or" means "and/or" unless the context dictates otherwise because the subject of the conjunction are mutually exclusive. The words "herein," "hereof" and "hereunder" and other words of similar import refer to this Agreement as a whole and not to any particular Section or other subdivision. All references to days in this Agreement shall mean calendar days, unless otherwise specified. Ambiguities and uncertainties in this Agreement, if any, shall not be interpreted against either Party, irrespective of which Party

may be deemed to have caused the ambiguity or uncertainty to exist. This Agreement has been prepared in the English language and the English language shall control its interpretation. In addition, all notices required or permitted to be given hereunder, and all written, electronic, oral or other communications between the Parties regarding this Agreement shall be in the English language.

12.11 Counterparts. This Agreement may be executed in counterparts, including by transmission of facsimile or PDF copies of signature pages to the Parties or their representative legal counsel, each of which shall be deemed an original document, and all of which, together with this writing, shall be deemed one instrument.

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IN WITNESS WHEREOF, the Parties hereto have duly executed this LICENSE AGREEMENT as of the Effective Date.

ARENA PHARMACEUTICALS INC.

LONGBOARD PHARMACEUTICALS, INC.

By: /s/ Amit D. Munshi
Name: Amit D. Munshi
Title: President and Chief Executive Officer

By: /s/ Kevin Lind
Name: Kevin Lind
Title: President and Chief Executive Officer

SIGNATURE PAGE TO LICENSE AGREEMENT

Appendix A

Certain Definitions

“AN659 Field” shall mean all therapeutic, prophylactic, and diagnostic uses in humans for sporadic Alzheimer’s disease, familial Alzheimer’s disease, amyotrophic lateral sclerosis, Parkinson’s disease, [***], [***], [***], [***], multiple sclerosis, Huntington’s disease, [***], and Dravet syndrome. For clarity, the AN659 Field shall not include any other neurological indications without Licensors’ written consent, which shall not be unreasonably withheld.

“CNS Indication” shall mean any disease, disorder or condition of the central nervous system in humans, including, without limitation, (i) [***] (i.e., [***], [***]), [***] (i.e., [***], [***], [***]), [***] (i.e., [***], [***]), [***] (i.e., [***]), and [***], [***], and (ii) [***], [***], [***], sporadic Alzheimer’s disease, familial Alzheimer’s disease, amyotrophic lateral sclerosis, Parkinson’s disease, [***], [***], [***], [***], multiple sclerosis, Huntington’s disease, [***], Dravet syndrome and [***]. Notwithstanding the foregoing, CNS Indication shall not mean (a) any indication in which the treatment, prevention or amelioration of pain in any form would be a primary efficacy endpoint in a clinical trial or (b) any gastrointestinal disorder, non-central nervous system autoimmune disorder or cardiovascular disorder.

“Licensors’ Product” shall mean any of etrasimod, lorcaserin, nelotanserin, olorinab, or temanogrel, in any dosage strength or formulation.

Appendix B

Development Plan [***]

Exhibit 1.1

2A Compound

[***]

Exhibit 1.5

2A Patents

***]

Exhibit 1.11

AN143 Compound

Exhibit 1.15

AN143 Patents

[***]

Exhibit 1.18

AN352 Compound

[***]

Exhibit 1.22

AN352 Patents

[***]

Exhibit 1.25

AN659 Compound

[***]

Exhibit 1.29

AN659 Patents

[***]

Royalty Purchase Agreement

This Royalty Purchase Agreement (the “**Agreement**”), dated as of October 27, 2020, is by and between Arena Pharmaceuticals, Inc. (“**Parent**”), 356 Royalty Inc., a Delaware corporation and wholly-owned subsidiary of Parent (“**356**”), and Longboard Pharmaceuticals, Inc., a Delaware corporation and wholly-owned subsidiary of Parent (the “**Company**”). Capitalized terms used but not defined herein shall have the meaning ascribed to such terms in that certain Transaction Agreement, dated as of December 28, 2016, by and among 356, Eisai Inc. and Eisai Co., Ltd. (the “**Transaction Agreement**”).

WHEREAS, 356 has the sole right to receive certain payments pursuant to and in accordance with the Transaction Agreement;

WHEREAS, 356 desires to sell, assign, convey and transfer to the Company, and the Company desires to purchase from 356, the Purchased Rights (defined below), upon and subject to the terms and conditions hereinafter set forth; and

WHEREAS, Parent, 356 and the Company desire to enter into this Agreement to memorialize the sale and assignment of the Purchased Rights to the Company, on the terms and subject to the conditions set forth in this Agreement.

NOW, THEREFORE, in consideration of the mutual covenants, terms and conditions set forth herein, 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:

ARTICLE I

1. Definitions.

(a) “*Purchased Rights*” means the right to receive one hundred percent (100%) of (i) all milestone payments paid, owed, or otherwise payable by Eisai under Section 8.2 of the Transaction Agreement on or after the date of this Agreement, (ii) all royalties paid, owed or otherwise payable by Eisai under Section 8.3 of the Transaction Agreement on or after the date of this Agreement, (iii) all amounts paid, owed or otherwise payable by Eisai under Section 8.5 of the Transaction Agreement on or after the date of this Agreement, (iv) all amounts paid, owed or otherwise payable by Eisai pursuant to Section 8.7 of the Transaction Agreement (other than amounts for audit costs) with respect to such milestone payments and/or royalties, (v) all interest paid, owed or otherwise payable by Eisai pursuant to Section 8.8 of the Transaction Agreement with respect to such milestone payments and/or royalties, and (vi) all amounts equal to the royalty payable under Section 8.3 of the Transaction Agreement with respect to all proceeds (including any damages, monetary awards or other amounts recovered, whether by judgment or settlement) deemed Net Sales pursuant to Section 10.3(d) of the Transaction Agreement.

2. Purchase and Sale.

(a) Purchase and Sale of Purchased Rights. On the terms and subject to the conditions set forth in this Agreement, 356 hereby sells, assigns, transfers, conveys and delivers to Company, and Company does hereby purchase, acquire and accept from 356, all of 356's right, title and interest in, to and under the Purchased Rights. In full consideration for the sale of the Purchased Rights, and subject to the terms and conditions set forth herein, the Company shall pay to 356, on the date hereof, the sum of one hundred twenty thousand nine hundred thirty dollars (\$120,930), by wire transfer to an account designated in writing by 356. If requested by the Company, 356 shall execute and deliver a Bill of Sale in such form as may be reasonably required by the Company, to further evidence the sale, assignment and conveyance of the Purchased Rights.

(b) Excluded Assets. Company does not, by assignment of the Purchased Rights hereunder, acquire any assets or contract rights of 356 under the Transaction Agreement, or any other assets or rights of 356, other than the Purchased Rights.

(c) True Sale. 356 and the Company intend and agree that the sale, assignment and transfer of the Purchased Rights under this Agreement shall be, and is, a true sale by the 356 to the Company that is absolute and irrevocable and that provides the Company with the full benefits of ownership of the Purchased Rights, and neither 356 nor the Company intends the transactions contemplated hereunder to be, or for any purpose (including tax purposes) characterized as, a loan from the Company to 356 or a pledge or security agreement. 356 waives any right to contest or otherwise assert that this Agreement is other than a true sale by 356 to the Company under applicable law, which waiver shall be enforceable against 356 in any bankruptcy or insolvency proceeding relating to 356. 356 intends for the conveyance to the Company of the Purchased Rights to be reflected on the balance sheets and other financial statements of 356 as a sale of the Purchased Rights to the Company and shall be reflected on the Company's balance sheet and other financial statements as a purchase of the Purchased Rights from 356.

(d) Financing Statements. 356 hereby consents to the Company recording and filing, at the Company's sole cost and expense, financing statements (and continuation statements with respect to such financing statements when applicable) meeting the requirements of applicable law in such manner and in such jurisdictions as are necessary or appropriate to (i) evidence or perfect the sale, assignment, transfer, and conveyance by 356 to the Company, and the purchase, acquisition and acceptance by the Company from 356, of the Purchased Rights and (ii) perfect the security interest in the Purchased Rights granted by 356 to the Company pursuant to Section 2(e) below.

(e) Security Interest. Notwithstanding that 356 and the Company expressly intend for the sale, assignment, transfer, and conveyance of the Purchased Rights to be a true, complete,

absolute and irrevocable sale and assignment, in the event that any transfer contemplated by this Agreement is held not to be a sale, 356 hereby assigns, conveys, grants and pledges to the Company, as security for its obligations created hereunder, a security interest in and to all of 356's right, title and interest in, to and under the Purchased Rights, whether now owned or hereafter acquired, and any proceeds (as such term is defined in the Uniform Commercial Code) thereof and, solely in such event, this Agreement shall constitute a security agreement.

3. Section 8.5 of Transaction Agreement; No Assumption of Liabilities. The Company hereby assumes and shall perform and discharge, when due, those obligations expressly set forth in Section 8.5 of the Transaction Agreement, as and to the extent exclusively resulting from, relating to or arising out of payments made to the Company after the date of this Agreement under the Purchased Rights. Other than as expressly set forth in the preceding sentence, the Company does not assume, and shall not be deemed to have assumed or guaranteed, any liability or obligation of any nature of 356 or Parent.

4. Representations and Warranties of 356. 356 hereby represents and warrants to the Company that:

(a) Organization of 356. 356 is a corporation duly organized, validly existing and in good standing under the laws of the State of Delaware.

(b) Authority. 356 has all requisite power and authority to execute and deliver this Agreement, to carry out its obligations hereunder, and to consummate the transactions contemplated hereby. 356 has obtained all necessary corporate approvals for the execution and delivery of this Agreement, the performance of its obligations hereunder, and the consummation of the transactions contemplated hereby. This Agreement has been duly executed and delivered by 356 and (assuming due authorization, execution and delivery by the Company) shall constitute a legal, valid and binding obligation of 356, enforceable against it in accordance with its terms.

(c) Ownership and Transfer of Purchased Rights. 356 is the sole owner of, and has valid, good and marketable title to, all of the Purchased Rights. 356 has the unrestricted right to assign, transfer, convey and deliver to the Company all right, title and interest in and to the Purchased Rights without penalty or other adverse consequences. 356 is not a party to any contract or agreement (other than this Agreement) that could require 356 to sell, transfer or otherwise dispose of any of the Purchased Rights.

5. Representations and Warranties of the Company. The Company hereby represents and warrants to 356 that:

(a) Organization of the Company. The Company is a corporation duly organized, validly existing and in good standing under the laws of the State of Delaware.

(b) Authority. The Company has all requisite power and authority to execute and deliver this Agreement, to carry out its obligations hereunder, and to consummate the transactions contemplated hereby. The Company has obtained all necessary corporate approvals for the execution and delivery of this Agreement, the performance of its obligations hereunder, and the consummation of the transactions contemplated hereby. This Agreement has been duly executed and delivered by the Company and (assuming due authorization, execution and delivery by 356) shall constitute a legal, valid and binding obligation of the Company, enforceable against it in accordance with its terms.

6. Covenants

(a) Affirmative Covenants. 356 shall:

(i) reasonably perform and comply with each of its duties and obligations, including all covenants, conditions and other provisions, with respect to the Purchased Rights under the Transaction Agreement, and take all reasonable steps in furtherance of protecting and preserving the Purchased Rights;

(ii) promptly after receipt of any Quarterly Report pursuant to Section 8.3(c) of the Transaction Agreement, then, in each such case, subject to applicable confidentiality restrictions, (a) inform the Company in writing of such receipt, and (b) furnish the Company with a copy of such report;

(iii) promptly after receipt of any written correspondence or written communication relating to the Transaction Agreement or the Purchased Rights that references or describes changes, effects, events, occurrences, states of facts, developments or conditions that would reasonably be expected, individually or in the aggregate, to have an adverse effect in any significant respect on the timing, amount or duration of the milestone payments or royalties payable under Sections 8.2 or 8.3 of the Transaction Agreement, or the right of the Company to receive such milestone payments or royalties (collectively, an “**Adverse Effect**”), then, in each such case, subject to applicable confidentiality restrictions, (a) inform the Company in writing of such receipt, (b) provide to the Company in writing a reasonably detailed description of the substance thereof, and (c) furnish the Company with a copy of such correspondence or communication;

(iv) promptly after becoming aware of a breach or default or alleged breach or default under Article 8 of the Transaction Agreement by Eisai, or of the existence of any facts, circumstances or events that, alone or together with other facts, circumstances or events, would reasonably be expected (with or without the giving of notice or passage of time, or both) to give rise to a material breach or default under Article 8 of the Transaction Agreement by Eisai, then, in each such case, subject to applicable confidentiality restrictions, 356 shall (i) give a written notice to the Company describing in reasonable detail the relevant breach or default, and (ii) at the Company’s expense, follow any reasonable direction of the Company and, as may be reasonably requested by the Company, take such permissible actions (including commencing legal action against Eisai and the selection of legal counsel reasonably satisfactory to the

Company) to enforce compliance by Eisai with the relevant provisions of Article 8 of the Transaction Agreement and to exercise any or all of 356's rights and remedies, whether under the Transaction Agreement or by operation of law, with respect thereto;

(v) make available its records and personnel to the Company in connection with any litigation by 356 against Eisai to enforce the Company's entitlement to the Purchased Rights;

(vi) promptly after becoming aware of any facts or circumstances that demonstrate a likelihood that the applicable royalty rate set forth in the Transaction Agreement will be reduced or eliminated, permanently or temporarily, subject to applicable confidentiality restrictions, give written notice to the Company describing in reasonable detail the relevant royalty reduction, including a copy of any written notice received from Eisai, and describing in reasonable detail any corrective action 356 proposes to take, if any, to object to or rectify such royalty reduction;

(vii) promptly, and in no event later than thirty (30) days following receipt thereof, deliver and pay to the Company any amount received by 356 after the date of this Agreement to the extent such amount constitutes any portion of the Purchased Rights hereunder. Any amount due under this Section 6(a)(vii) that is not paid on or before the date such payment is due shall bear interest, to the extent permitted by applicable law, at 1.5 percentage points above the U.S. Prime Rate, as reported in the Wall Street Journal, Eastern Edition from time to time, calculated on the number of days such payment is overdue; and

(viii) cooperate with the Company to minimize withholdings under Section 8.5 of the Transaction Agreement.

(b) Confidentiality. The Company agrees that, to the extent it receives any Confidential Information, it shall be subject to obligations of confidentiality and non-use with respect to such Confidential Information in substantially the same manner as a Receiving Party pursuant to Article 9 of the Transaction Agreement.

(c) Limitations. Notwithstanding anything to the contrary in this Agreement, to the extent that delivery or disclosure required to be made by 356 to the Company under this Agreement would constitute a breach or violation by 356 of any applicable confidentiality restrictions (including those in the Transaction Agreement), 356 shall cooperate with the Company to implement a procedure to permit access to or disclosure of, or otherwise provide a summary of, such information in a manner that would not reasonably be expected to cause a breach or violation of the applicable confidentiality restriction, provided that, for clarity, 356 shall not be required to contact, engage in any discussions with or solicit any consent of Eisai to satisfy its obligations under Section 6(a).

(d) Infringement Proceedings. The Company shall have the right, at its sole expense, to consult with Parent and 356 regarding any action, suit or proceeding involving the

infringement, legality, validity or enforceability of any Arena Licensed Patent or the Transaction Agreement or the misappropriation of Arena Licensed Know-How, in each case to the extent that any such action, suit or proceeding would reasonably be expected to have an Adverse Effect. Parent agrees, at the Company's expense and to the extent reasonably requested by the Company, to cooperate with the Company with respect to any such action, suit or proceeding. If requested by the Company, 356 shall, at the Company's expense, exercise and enforce its rights (to the extent it has applicable rights) to participate in, and control, any such action, suit or proceeding to the fullest extent permissible under the terms of the Transaction Agreement.

(e) Negative Covenants. Parent and 356 agrees that it shall not, without the prior written consent of the Company:

(i) sell, transfer or otherwise dispose of any of the Purchased Rights (other than pursuant to this Agreement), or attempt to do any of the foregoing, or enter into any contract or agreement (other than this Agreement) that could require 356 to sell, transfer or otherwise dispose of any of the Purchased Rights;

(ii) forgive, release or compromise any milestone payment or royalty owed under the Transaction Agreement;

(iii) waive, amend, cancel or terminate, or exercise or fail to exercise any of its material rights under the Transaction Agreement to the extent constituting, involving or relating to the right to receive milestone payments or royalties thereunder; or

(iv) amend, modify, restate, cancel, supplement, terminate or waive any provision of the Transaction Agreement, or grant any consent under the Transaction Agreement, or agree to do any of the foregoing, including entering into any agreement with Eisai under the provisions of the Transaction Agreement, unless any such action would reasonably be expected to not have an Adverse Effect.

7. Further Assurances. Parent, 356 and the Company agree to execute any and all documents and instruments of transfer, assignment, assumption or novation and to perform such other acts as may be reasonably necessary or expedient to further the purposes of this Agreement and the transactions contemplated by this Agreement.

8. Notices. All notices, consents, waivers and communications hereunder given by any party to the other shall be in writing and delivered personally, by hand, by a recognized overnight courier, or by sending the same by certified or registered mail, return receipt requested, with postage prepaid, or by email (provided any notice given by email shall also be given by another method of delivery permitted by this Section 8), in each case addressed:

If to Parent:

Arena Pharmaceuticals, Inc.
6154 Nancy Ridge Drive
San Diego, CA 92121
Attention: General Counsel

If to 356:

356 Royalty Inc.
6154 Nancy Ridge Drive
San Diego, CA 92121
Attention: Chief Executive Officer

If to the Company:

Longboard Pharmaceuticals, Inc.
6154 Nancy Ridge Drive
San Diego, CA 92121
Attention: Chief Executive Officer

or to such other address or addresses as 356 or the Company may from time to time designate by notice as provided herein, except that notices of changes of address shall be effective only upon receipt. All such notices, consents, waivers and communications shall: (a) when posted by certified or registered mail, postage prepaid, return receipt requested, be effective three (3) business days after being sent, (b) when delivered by a recognized overnight courier or in person, be effective upon receipt when hand delivered or (c) on the date sent by e-mail if sent during normal business hours of the recipient, and on the next Business Day if sent after normal business hours of the recipient, and in either case followed by a transmission pursuant to another method of delivery permitted by this Section 8.

9. Entire Agreement. This Agreement constitutes the sole and entire agreement of the parties to this Agreement with respect to the subject matter contained herein, and supersedes all prior and contemporaneous understandings, representations and warranties and agreements, both written and oral, with respect to such subject matter.

10. Successors and Assigns. This Agreement shall be binding upon and shall inure to the benefit of the parties hereto and, subject to this Section 10, their respective successors and permitted assigns. Neither this Agreement nor any of the rights, interests or obligations hereunder shall be sold, transferred, conveyed or assigned, in whole or in part, by operation of law or otherwise, by 356 or the Company without the prior written consent of the other party, except that, subject to this Section 10:

(a) Parent and/or 356 may, without the consent of the Company, sell, transfer, convey or assign its rights and obligations under this Agreement, in whole but not in part, to any person

or entity, (i) with which Parent or 356, respectively, merges or consolidates or to which Parent or 356, respectively, sells all or substantially all of its assets, and (ii) to which 356 assigns the Transaction Agreement in accordance with its terms; and

(b) The Company may, without the consent of 356, sell, transfer, convey or assign its rights and obligations under this Agreement, in whole but not in part, to any person or entity with which the Company merges or consolidates or to which the Company sells all or substantially all of its assets.

Any permitted sale, transfer, conveyance or assignment under this Section 10 shall only be effective upon the written notification by the applicable party to the other party hereto of such sale, transfer, conveyance or assignment.

11. No Third-Party Beneficiaries. This Agreement is for the sole benefit of the parties hereto and their respective successors and permitted assigns and nothing herein, express or implied, is intended to or shall confer upon any other person any legal or equitable right, benefit or remedy of any nature whatsoever, under or by reason of this Agreement.

12. Headings. The headings in this Agreement are for reference only and shall not affect the interpretation of this Agreement.

13. Amendment and Modification; Waiver. This Agreement may only be amended, modified or supplemented by an agreement in writing signed by each party hereto. No waiver by any party of any of the provisions hereof shall be effective unless explicitly set forth in writing and signed by the party so waiving. Except as otherwise set forth in this Agreement, no failure to exercise, or delay in exercising, any rights, remedy, power or privilege arising from this Agreement shall operate or be construed as a waiver thereof; nor shall any single or partial exercise of any right, remedy, power or privilege hereunder preclude any other or further exercise thereof or the exercise of any other right, remedy, power or privilege.

14. Governing Law; Submission to Jurisdiction. This Agreement shall be governed by and construed in accordance with the internal laws of the State of California without giving effect to the principles of conflicts of laws thereof. Any legal suit, action or proceeding arising out of or based upon this Agreement or the transactions contemplated hereby may be instituted in the federal courts of the United States or the courts of the State of California in each case located in the city and County of San Diego, and each party irrevocably submits to the exclusive jurisdiction of such courts in any such suit, action or proceeding. Service of process, summons, notice or other document by mail to such party's address set forth herein shall be effective service of process for any suit, action or other proceeding brought in any such court. The parties irrevocably and unconditionally waive any objection to the laying of venue of any suit, action or any proceeding in such courts and irrevocably waive and agree not to plead or claim in any such court that any such suit, action or proceeding brought in any such court has been brought in an inconvenient forum.

15. Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original, but all of which together shall be deemed to be one and the same agreement. A signed copy of this Agreement delivered by e-mail or other means of electronic transmission shall be deemed to have the same legal effect as delivery of an original signed copy of this Agreement.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date first above written.

ARENA PHARMACEUTICALS, INC.

By: /s/ Amit D. Munshi
Name: Amit D. Munshi
Title: President and Chief Executive Officer

356 ROYALTY INC.

By: /s/ Amit D. Munshi
Name: Amit D. Munshi
Title: President and Chief Executive Officer

LONGBOARD PHARMACEUTICALS, INC.

By: /s/ Kevin Lind
Name: Kevin Lind
Title: President and Chief Executive Officer

SERVICES AGREEMENT

THIS SERVICES AGREEMENT (this “*Agreement*”), effective as of October 27, 2020 (the “*Effective Date*”) by and between Arena Pharmaceuticals, Inc., a Delaware corporation (“*Arena*”) and Longboard Pharmaceuticals, Inc., a Delaware corporation (“*Longboard*”). Longboard and Arena are referred to individually as a “*Party*” and collectively as the “*Parties*”.

RECITALS

WHEREAS, Arena and Longboard are entering into that certain License Agreement between the Parties dated of even date herewith (the “*License Agreement*”);

WHEREAS, Arena and Longboard are both engaged in the business of developing drug products, with Longboard focusing on drug products targeting neurological diseases; and

WHEREAS, Longboard desires to engage Arena to perform services for Longboard and Arena desires to perform such services for Longboard.

NOW, THEREFORE, in consideration of the mutual covenants and undertakings herein, the adequacy of which is acknowledged by the Parties, Longboard and Arena hereby agree as follows.

SECTION 1 DEFINITIONS

1.1 “*Affiliate*” means any company or entity controlled by, controlling, or under common control with a Party or another entity. For the purpose of this definition only, an entity shall be deemed to “control” another entity, if it owns directly or indirectly, more than 50% of the outstanding voting securities, capital stock, or other comparable equity or ownership interest of such entity, or exercises equivalent influence over such entity. For purposes of this Agreement, Longboard shall not be considered an Affiliate of Arena, and Arena and its Affiliates shall not be considered Affiliates of Longboard.

1.2 “*Applicable Law*” means any applicable federal, state, local or other domestic or foreign law (including common law), statute, ordinance, rule, regulation, judgment, order, writ, decree or other court orders, or other requirement issued, enacted, adopted, promulgated, implemented or otherwise put into effect by or under the authority of any Governmental Authority.

1.3 “*Compensation*” has the meaning given such term in Section 2.7(a) of this Agreement.

1.4 “*Confidential Information*” means any and all information, ideas, inventions, discoveries, concepts, formulas, practices, procedures, processes, methods, knowledge, Know-How, trade secrets, technology, inventories, machines, techniques, development, designs, drawings, computer programs, skill, experience, documents, apparatus, results, clinical and regulatory strategies, documentation, information and submissions pertaining to, or made in

association with, filings with any Regulatory Authority, data, including pharmacological, toxicological, pre-clinical and clinical data, analytical and quality control data, manufacturing data and descriptions, patent and legal data, market data, financial data or descriptions, devices, assays, chemical formulations, specifications, material, compositions of matter, product samples and other samples, physical, chemical and biological materials and compounds, and the like, in written, electronic or other form, now known or hereafter developed, whether or not patentable, including all information concerning any Product and any other technical or business information of whatever nature.

1.5 “*Disclosing Party*” has the meaning given such term in Section 3.2 of this Agreement.

1.6 “*EMA*” means the European Medicines Agency or any successor agency thereto.

1.7 “*FDA*” means the U.S. Food and Drug Administration, or any successor agency thereto.

1.8 “*General Scientific Knowledge*” means any methods, processes or scientific knowledge used or developed by or for Arena for performance of discovery, research and development activities generally, and any documentation, records, raw materials (other than Materials), specimens, Know-How, or writings related to such methods, processes or scientific knowledge, but excluding (a) any methods or processes disclosed or provided to Arena by or on behalf of Longboard as specified in writing and agreed to by Arena or (b) any methods, processes or scientific knowledge identified or developed in the course of performing the Services that are applicable only to Products.

1.9 “*Governmental Authority*” means any court, agency, department, authority or other instrumentality of any foreign, federal, state, county, city or other political subdivision.

1.10 “*Intellectual Property*” means Know-How, Patents, any other indicia of ownership of an invention, trademarks, service marks, trade names, trade dress, domain names, copyrights, trade secrets, inventions, technology, discoveries, software, formulae, processes, confidential and proprietary information and any other similar proprietary rights and registrations and applications for registration for any of the foregoing recognized by any Governmental Authority.

1.11 “*Know-How*” means technical information and know-how, including biological, chemical, pharmacological, toxicological, clinical, assay and related know-how and trade secrets, and manufacturing data, pre-clinical and clinical data, the specifications of ingredients, the manufacturing processes, formulation, specifications, sourcing information, quality control and testing procedures and related know-how and trade secrets.

1.12 “*License Agreement*” has the meaning given to such term in the preamble to this Agreement.

1.13 “*Longboard Property*” has the meaning given such term in Section 4.1 of this Agreement.

1.14 “Longboard Work Product” means any and all results (including data) and products (interim or final) of the Services performed by Arena hereunder, whether tangible or intangible, including each and every invention (whether or not patentable), discovery, design, drawing, protocol, process, technique, formula, trade secret, device, compound, substance, material, pharmaceutical, method, software program (including object code, source code, flow charts, algorithms and related documentation), listing, routine, manual and specification, whether or not patentable or copyrightable, that are made, developed, perfected, designed, conceived or first reduced to practice by Arena, either solely or jointly with others, in the course of and as a result of the performance of the Services, and Intellectual Property rights in and to the foregoing, including any and all inventions and Intellectual Property covering the composition, manufacture or use of Products first made in the course of performing the Services. Notwithstanding the foregoing, Longboard Work Product shall exclude General Scientific Knowledge and the Retained Rights.

1.15 “Materials” means any chemical or biological materials provided by Longboard to Arena for use in performing the Services, including any progeny or unmodified derivatives of such materials.

1.16 “Patents” means (a) patents and patent applications (provisional and non-provisional) anywhere in the world, (b) all divisionals, continuations, continuations in-part thereof, or any other patent application claiming priority, or entitled to claim priority, directly or indirectly to (i) any such patents or patent applications or (ii) any patent or patent application from which such patents or patent applications claim, or is entitled to claim, direct or indirect priority, and (c) all patents issuing on any of the foregoing anywhere in the world, together with all registrations, reissues, re-examinations, patents of addition, renewals, supplemental protection certificates, or extensions of any of the foregoing anywhere in the world.

1.17 “Person” shall mean an individual, firm, corporation, partnership, limited liability company, trust, business trust, joint venture, Governmental Authority, association or other entity.

1.18 “Product” means any Licensed Product (as defined in the License Agreement).

1.19 “Receiving Party” has the meaning given such term in Section 3.2 of this Agreement.

1.20 “Regulatory Authority” means any Governmental Authority that has responsibility in any country or group of countries over the development, manufacture or commercialization of a Product, including the FDA and EMA.

1.21 “R&D Plan” has the meaning given to such term in **Exhibit A** to this Agreement.

1.22 “Retained Rights” means the rights to Intellectual Property retained by Arena pursuant to the License Agreement, including all right, title and interest in and to any New Compound IP (as defined in the License Agreement), and any other rights to Intellectual Property designated by the Parties as to be owned by Arena pursuant to the R&D Plan.

1.23 “Services” has the meaning given such term in Section 2.1 of this Agreement.

1.24 “**Term**” has the meaning given such term in Section 5.1 of this Agreement.

1.25 “**Third Party**” or “**Third Parties**” shall mean any entity other than a Party.

SECTION 2 SERVICES AND COMPENSATION

2.1 Performance of Services. Subject to the terms of this Agreement, Arena shall perform or cause to be performed such executive management, administrative support and development activities with respect to Products and provide or cause to be provided to Longboard such other services, in each case, as may reasonably be requested by Longboard and reasonably approved by Arena from time to time and set forth on Exhibit A to this Agreement (“**Services**”). Arena will perform the Services in compliance with all Applicable Laws and the terms of this Agreement. Without limiting the foregoing, Arena will perform the Services in compliance with good laboratory practice, good clinical practice and good manufacturing practices, in each case as applicable under the Applicable Laws of the country and the state and local government wherein such activities are conducted, and with respect to the care, handling and use in research and development activities of any non-human animals by or on behalf of Arena, shall comply in all material respects with Applicable Laws.

2.2 Qualified Personnel. Arena will make available qualified personnel to perform the Services and shall perform the Services in a timely, efficient and professional manner. Arena shall comply and shall cause its employees and subcontractors to comply with all personnel, facility, safety and security rules and regulations of Longboard, and shall conduct its work in such a manner as to avoid endangering the safety of any person.

2.3 Subcontractors. Subject to the terms of this Agreement, Arena may engage subcontractors to perform Services. The engagement of a subcontractor by Arena shall not relieve Arena of any of its obligations under this Agreement. Arena shall be responsible for the performance or nonperformance of its subcontractors as if such performance or nonperformance were that of Arena. Arena shall require all subcontractors to maintain adequate controls to ensure subcontractors perform in accordance with the standards required of Arena in this Agreement.

2.4 No Debarment. Arena shall not employ (or use any subcontractor or consultant that employs) any individual or entity that it knows (a) is debarred by the FDA (or subject to a similar sanction of EMA or other applicable Regulatory Authority), (b) is the subject of an FDA debarment investigation or proceeding (or similar proceeding of EMA or other applicable Regulatory Authority), or (c) has been charged with or convicted under Applicable Laws for conduct relating to the development or approval, or otherwise relating to the regulation of any product under the Generic Drug Enforcement Act of 1992, in each case, in the conduct of its activities under this Agreement.

2.5 Changes. The Parties acknowledge that changes may be made to the Services described in Exhibit A as agreed in writing by the Parties. Arena will provide the Services in accordance with Exhibit A, as updated from time to time. The Parties acknowledge that Arena may make changes from time to time in the manner of performing the Services, provided that any such changes shall be made in consultation with Longboard.

2.6 Communications. On a regular basis, Arena and Longboard shall conduct meetings, either in person or by telephone or video conference, to discuss the progress and results of the Services. Arena shall deliver to Longboard the Longboard Work Product from time to time as provided in Exhibit A or as agreed in writing by the Parties.

2.7 Payment by Longboard.

(a) **Compensation.** In consideration for performance of the Services, Longboard shall pay Arena fees for the provision of Services in accordance with Exhibit B (the “**Compensation**”).

(b) **Payment.** Payment by Longboard shall be made in U.S. dollars (unless otherwise agreed to by the Parties) and may be made by way of a cash payment to Arena. Payments shall be subject to all Applicable Laws, including the withholding of any taxes required by law. Arena will pay any and all taxes levied on account of any payments made to it under this Agreement.

(c) **Time of Payment.** The Compensation set forth in an invoice shall be due and payable no later than thirty (30) days following receipt by Longboard of such invoice from Arena. Any payment due under this Section 2.7 that is not paid on or before the date such payment is due shall bear interest, to the extent permitted by Applicable Law, at 1.5 percentage points above the U.S. Prime Rate, as reported in the Wall Street Journal, Eastern Edition from time to time, calculated on the number of days such payment is overdue.

2.8 Third Party Contracts.

(a) Arena and Longboard may mutually agree to assign to Longboard certain contracts related to the Products to which Arena is a party, including but not limited to the contracts listed in Exhibit C (each, an “**Assumed Contract**”), which shall be documented by an assignment and assumption agreement in a form mutually agreed by the Parties. If such an assignment of an Assumed Contract or an attempt to make such an assignment without the consent or approval of a third party would constitute a breach or violation thereof or affect adversely the rights of Arena thereunder, such Assumed Contract shall not be assigned in the absence of such consent or approval. For a period of six (6) months after the Parties’ agreement to assign an Assumed Contract, Arena shall use its commercially reasonable efforts to seek the consent of third parties required to assign such Assumed Contract to Longboard, and shall in the interim continue to maintain such Assumed Contract on behalf of and for the benefit of Longboard, at Longboard’s sole expense. During such six (6) month period Arena shall not amend or modify any such Assumed Contract without the prior written consent of Longboard.

(b) In the event that Arena’s performance of the Services hereunder requires Arena to exercise its rights under any contract to which Arena is a party (which contract is not, for clarity, an Assumed Contract), including but not limited to the contracts listed in Exhibit D (each, a “**Third Party Contract**”), then Arena agrees to use commercially reasonable efforts to exercise such rights, and provide Longboard with substantially equivalent benefits and subject Longboard

to substantially equivalent burdens, at Longboard's sole expense, as if Longboard were directly a party to such Third Party Contract, *provided* that to the extent such actions would reasonably be expected to constitute a breach of such Third Party Contract, then Arena shall be entitled to cease performing the portion of the Services which requires such Third Party Contract. Upon Longboard's written notice to Arena that Longboard no longer requires the Services to be performed with respect to a Third Party Contract, the Parties shall cooperate to wind down Arena's activities on behalf of Longboard under such Third Party Contract. Arena shall not amend or modify any such Third Party Contract, or waive any rights thereunder, without the prior written consent of Longboard, unless such amendment, modification or waiver does not relate to Arena's performance of the Services. Longboard shall reimburse Arena's out-of-pocket expenses incurred under a Third Party Contract to the extent paid in accordance with the terms of the relevant Third Party Contract, *provided*, that to the extent a Third Party Contract provides for services unrelated to the Products, Longboard shall only be required to reimburse such out-of-pocket expenses to the extent related primarily to the Products and the Services. If reasonably requested by Longboard and at Longboard's sole expense, Arena agrees to exercise its rights under the Third Party Contracts (which may include enforcing contractual provisions against a Third Party), *provided*, if an action requested by Longboard would be reasonably expected to adversely affect Arena, then Arena shall not be obligated to take such action and the Parties will cooperate to find a mutually agreeable alternative.

SECTION 3 EXCHANGE OF INFORMATION AND CONFIDENTIALITY

3.1 Use of Materials and Confidential Information Provided by Longboard. During the Term, Longboard shall provide to Arena Materials and Confidential Information of Longboard that Arena reasonably needs to perform the Services. Arena shall have a nonexclusive right to use any such Materials and Confidential Information of Longboard solely for the purpose of performing the Services subject to and in accordance with the terms and conditions of this Agreement. Arena understands and agrees that Materials may have unpredictable and unknown biological or chemical properties, and that they are to be used with caution. Arena shall not sell, transfer, disclose or otherwise provide access to any Materials, any method or process relating thereto, or any material that could not have been made but for receipt of the foregoing from Longboard, or any Confidential Information of Longboard to any Person without the prior written consent of Longboard, except that Arena may allow access to the Materials and Confidential Information of Longboard solely to those employees and subcontractors of Arena who require such access in order to perform the Services and solely for purposes of performing the Services; provided that any such employees and subcontractors are bound by confidentiality, non-disclosure, non-use and transfer of ownership obligations with respect to the Materials, Confidential Information of Longboard and Longboard Work Product consistent with those contained in this Agreement.

3.2 Confidentiality. The Parties agree that the Party (in such capacity, the "**Receiving Party**") receiving Confidential Information of the other Party (in such capacity, the "**Disclosing Party**") (or that has received any such Confidential Information from the Disclosing Party prior to the Effective Date) shall (a) maintain in confidence such Confidential Information using not less than the efforts such Receiving Party uses to maintain in confidence its own proprietary industrial information of similar kind and value, but in no event less than reasonable

efforts, (b) not disclose such Confidential Information to any Person without the prior written consent of the Disclosing Party, except for disclosures expressly permitted by this Agreement, and (c) not use such Confidential Information for any purpose except as expressly permitted by this Agreement or any other written agreement between the Parties (it being understood that this clause (c) shall not create or imply any rights or licenses not expressly granted under any such agreement). Notwithstanding anything to the contrary herein, (a) the Longboard Work Product shall be Confidential Information of Longboard, and Longboard shall be the Disclosing Party and Arena shall be the Receiving Party with respect thereto and (b) Longboard can disclose and use any Confidential Information licensed to Longboard under the License Agreement in accordance with the terms of such agreement.

3.3 Confidentiality Exceptions. The obligations in Section 3.2 shall not apply with respect to any portion of Confidential Information that the Receiving Party can show by competent written proof:

- (a) is publicly disclosed by the Disclosing Party, either before or after it is disclosed to the Receiving Party hereunder;
- (b) was known to the Receiving Party, without any obligation to keep it confidential or any restriction on its use, prior to disclosure by the Disclosing Party;
- (c) is subsequently disclosed to the Receiving Party by a Third Party lawfully in possession thereof and without any obligation to keep it confidential or any restriction on its use;
- (d) is published by a Third Party or otherwise becomes publicly available or enters the public domain, either before or after it is disclosed to the Receiving Party; or
- (e) is independently developed by or for the Receiving Party without reference to or reliance upon the Disclosing Party's Confidential Information.

3.4 Authorized Disclosures. Notwithstanding Section 3.2, the Receiving Party may disclose Confidential Information of the Disclosing Party:

- (a) to the extent such disclosure is required in response to an order of a court or other Governmental Authority or is otherwise required by Applicable Laws to be disclosed, provided that, where reasonably possible, the Receiving Party shall notify the Disclosing Party of the Receiving Party's intent to make any disclosures pursuant to this Section 3.4 sufficiently prior to making such disclosure so as to allow the Disclosing Party adequate time to take whatever action it may deem appropriate to protect the confidentiality of the information, and the Receiving Party will provide reasonable assistance to the Disclosing Party with respect thereto; provided that, in any event, the Receiving Party will use reasonable measures to ensure confidential treatment of such information and shall only disclose such Confidential Information of the Disclosing Party as is necessary to comply with such Applicable Laws or judicial process; and
- (b) solely on a "need to know basis" to permitted subcontractors and to employees and agents of the Receiving Party and its permitted subcontractors, each of whom

prior to disclosure must be bound by written obligations of confidentiality and non-use no less restrictive than the obligations set forth in this Section 3, which for avoidance of doubt, will not permit use of such Confidential Information for any purpose except those permitted by this Agreement; provided, however, that the Receiving Party shall remain responsible for any failure by any Person who receives Confidential Information pursuant to this Section 3.4(b) to treat such Confidential Information as required under this Section 3.

3.5 Publicity. Except as may be required by Applicable Laws (including disclosure requirements of the U.S. Securities and Exchange Commission or any stock exchange on which securities issued by a Party or its Affiliates are traded) or as set forth in Section 3.3, each Party agrees not to publicize or disclose the existence or terms of this Agreement to any Third Party without the prior written consent of the other Party, except that Longboard may also disclose the terms of this Agreement on a confidential basis to investors, potential investors, creditors, advisors, and consultants to the extent that such disclosure is in connection with due diligence or similar investigations for a potential financial relationship between Longboard and a Third Party.

3.6 Equitable Relief. Given the nature and value of the Confidential Information and the competitive damage and irreparable harm that might result to the Disclosing Party upon unauthorized disclosure, use or transfer of its Confidential Information to any Third Party, the Parties agree that monetary damages would not be a sufficient remedy for any breach of this Section 3. If the Receiving Party becomes aware of any breach or threatened breach of this Section 3 by a Third Party to whom the Receiving Party disclosed the Disclosing Party's Confidential Information, the Receiving Party promptly shall notify the Disclosing Party and cooperate with the Disclosing Party to regain possession of its Confidential Information and prevent any further breach. In addition to all other remedies, a Party shall be entitled to specific performance and injunctive and other equitable relief as a remedy for any breach or threatened breach of this Section 3 without furnishing proof of actual damages.

SECTION 4 INTELLECTUAL PROPERTY

4.1 Ownership. Longboard shall own all right, title and interest in and to all Materials and Longboard Work Product, including all Intellectual Property rights therein (collectively, the "***Longboard Property***"). Neither this Agreement, nor the provision of the Services hereunder, shall give Arena any right, title or interest in or to any Longboard Property or other Intellectual Property of Longboard or its licensors disclosed or made available by Longboard to Arena for purposes of performance of the Services.

4.2 Assignment; Assistance. As necessary to establish the ownership set forth in Section 4.1, Arena hereby irrevocably assigns to Longboard all of its right, title and interest worldwide in and to the Longboard Property without royalty or any other consideration and agrees to execute all applications, assignments or other instruments reasonably requested by Longboard in order for Longboard to establish its ownership of the Longboard Property and to obtain whatever protection for the Longboard Property, including Patent rights in any and all countries as Longboard shall determine. Arena agrees to assist Longboard, or its designee, in every reasonable way (but at Longboard's expense) to secure Longboard's rights in Longboard Property, including the disclosure to Longboard of all pertinent information and data with respect

to all Longboard Property, the execution of all applications, specifications, oaths, assignments and all other instruments that Longboard may deem necessary in order to apply for and obtain such rights and in order to assign and convey to Longboard, its successors, assigns and nominees the sole and exclusive right, title and interest in and to all Longboard Property. The obligation of Arena to execute or cause to be executed any such instrument or papers shall continue after the expiration or termination of this Agreement. Arena agrees that, if Longboard is unable because of Arena's unavailability, dissolution, or otherwise, to secure Arena's signature for the purpose of applying for or pursuing any application for any Patents or copyright registrations covering the Longboard Property assigned to Longboard herein, then, until such time Arena becomes available, Arena hereby designates and appoints Longboard and its duly authorized officers and agents as its agent and attorney-in-fact, to act for and on Arena's behalf to execute and file any such applications and to do all other lawfully permitted acts only to further the prosecution and issuance of Patents and copyright registrations with the same legal force and effect as if executed by Arena.

4.3 Waiver or Assignment of Other Rights. As necessary to establish the ownership set forth in Section 4.1, if Arena has any rights to Longboard Property that cannot be assigned to Longboard, Arena unconditionally and irrevocably waives the enforcement of such rights, and all claims and causes of action of any kind against Longboard or its licensors with respect to such rights to Longboard Property. As necessary to establish the ownership set forth in Section 4.1, if Arena has any right to the Longboard Property that cannot be assigned to Longboard or waived by Arena, Arena unconditionally and irrevocably grants to Longboard during the term of such rights, an exclusive, irrevocable, perpetual, worldwide, fully paid and royalty-free license, with rights to sublicense through multiple levels of sublicensees, to use, practice, reproduce, create derivative works of, distribute, publicly perform and publicly display by all means now known or later developed such rights. Without limitation to the foregoing, Arena hereby concurrently and permanently waives all paternity, integrity, special, moral or similar rights, if any, that vest or may vest in Arena as of the date any Longboard Property owned by Longboard is created under the provisions of any Applicable Laws, and Arena hereby agrees to secure such permanent waiver of such rights, if any, that vest or may vest in Arena's employees or subcontractors under such Applicable Laws. Arena further acknowledges and agrees that through the complete and permanent waiver contained herein Arena will ensure that Arena's employees' legal heirs do not retain any paternity, integrity, moral, special or similar rights in and to the Longboard Property owned by Longboard.

4.4 General Scientific Knowledge; Retained Rights. Notwithstanding the foregoing provisions of this Section 4, Arena retains all right, title and interest in and to any and all General Scientific Knowledge and Retained Rights developed by Arena in the course of performing the Services, including, without limitation, all patent, copyright or other intellectual property rights therein.

SECTION 5 TERM AND TERMINATION

5.1 Term. The term of this Agreement shall commence on the Effective Date and, unless earlier terminated in accordance with this Section 5, shall continue until December 31, 2021, and shall automatically renew for successive one (1)-year terms, unless either Party provides written notice of its desire not to renew at least thirty (30) days prior to the expiration of the then-current term (the initial term, together with any renewal terms, collectively, the "**Term**").

5.2 Termination.

(a) **By Either Party.** Longboard may terminate this Agreement either with respect to all, or with respect to any one or more, of the Services provided hereunder at any time and from time to time, for any reason or no reason, by giving written notice to Arena at least thirty (30) days prior to the date of such termination. Arena may terminate this Agreement either with respect to all, or with respect to any one or more, of the Services provided by it hereunder at any time and from time to time, for any reason or no reason, by giving written notice to Longboard (i) if prior to June 30, 2021, at least one-hundred eighty (180) days prior to the date of such termination or (ii) if after June 30, 2021, at least sixty (60) days prior to the date of such termination, and after delivery of such notice, shall reasonably cooperate with Longboard on any activities necessary to transition the Services to Longboard. In addition, the Parties may at any time agree in writing to terminate this Agreement with respect to some or all of the Services, effective immediately or as indicated in such writing. In the event of any termination with respect to one or more, but less than all, Services, this Agreement shall continue in full force and effect with respect to any Services not terminated thereby.

(b) **Payment Upon Termination.** In the event of termination of this Agreement or any Services hereunder, Longboard shall pay Arena for all Services completed through the date of termination in accordance with this Agreement, including any non-cancelable commitments incurred by Arena in accordance with this Agreement.

(c) **Delivery of Longboard Work Product.** Upon expiration or termination of this Agreement, Arena shall deliver to Longboard any and all Longboard Work Product not previously delivered to Longboard.

(d) **Return of Confidential Information.** Upon expiration or termination of this Agreement, each Receiving Party shall promptly, at the Disclosing Party's election, either return to the Disclosing Party or destroy, at no cost to the Disclosing Party, all Confidential Information of the Disclosing Party; provided that each Party may keep one copy of such Confidential Information for archival purposes subject to continuing confidentiality and non-use obligations under this Agreement.

(e) **Survival.** Expiration or termination of this Agreement will not relieve any Party of any obligation accruing prior to such expiration or termination. Sections 1, last sentence of 2.8(b) (but only for so long as the License Agreement is in effect), 3.2, 3.3, 3.4, 3.5, 3.6, 4, 5.2, 6.4, 6.5 and 7 will survive expiration or termination of this Agreement.

SECTION 6

REPRESENTATIONS AND WARRANTIES; DISCLAIMER; LIMITATION OF LIABILITY

6.1 Mutual Representations and Warranties. Each Party represents and warrants to the other that: (a) it has full power and authority to enter into this Agreement and to perform

its obligations hereunder; (b) this Agreement is legally binding upon it, enforceable against it in accordance with its terms, and does not conflict with any 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 Authority or administrative or other agency having jurisdiction over it; and (c) such Party is not under any pre-existing obligation inconsistent with the provisions of this Agreement.

6.2 Arena. Arena is not currently, and will not voluntarily become, subject to any agreement or obligation that would conflict with the terms of this Agreement or prevent Arena from performing Services in accordance with the terms of this Agreement.

6.3 Longboard. To the extent Longboard provides Arena with any Materials pursuant to this Agreement, Longboard has the right to provide such Materials to Arena for use as contemplated by this Agreement, and to Longboard's knowledge, the use of such Materials by Arena in accordance with the terms of this Agreement will not infringe the Intellectual Property rights of any Third Party.

6.4 Disclaimer. EXCEPT AS EXPRESSLY SET FORTH IN SECTIONS 6.1, 6.2 AND 6.3, NEITHER PARTY MAKES ANY REPRESENTATIONS OR WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING ANY EXPRESS OR IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OR VALIDITY OF ANY PATENTS ISSUED OR PENDING, OR WITH RESPECT TO THE OUTCOME OR RESULTS OF ANY ACTIVITIES TO BE PERFORMED PURSUANT TO THIS AGREEMENT.

6.5 Limitation of Liability. EXCEPT FOR (A) A BREACH OF SECTION 3 (CONFIDENTIALITY), OR (B) DAMAGES DUE TO THE GROSS NEGLIGENCE OR WILLFUL MISCONDUCT OF THE LIABLE PARTY, NEITHER PARTY, NOR ANY OF THEIR RESPECTIVE AFFILIATES, SHALL BE LIABLE TO ANY OTHER PARTY OR ITS AFFILIATES FOR ANY INCIDENTAL, INDIRECT, SPECIAL, EXEMPLARY, PUNITIVE, MULTIPLE OR CONSEQUENTIAL DAMAGES (INCLUDING LOST PROFITS, LOSS OF USE, DAMAGE TO GOODWILL, OR LOSS OF BUSINESS) ARISING OUT OF OR RELATING TO THIS AGREEMENT, WHETHER UNDER ANY CONTRACT, NEGLIGENCE, STRICT LIABILITY OR OTHER LEGAL OR EQUITABLE THEORY AND IRRESPECTIVE OF WHETHER THAT PARTY OR ANY REPRESENTATIVE OF THAT PARTY HAS BEEN ADVISED OF, OR OTHERWISE MIGHT HAVE ANTICIPATED THE POSSIBILITY OF, ANY SUCH LOSS OR DAMAGE.

SECTION 7 MISCELLANEOUS PROVISIONS

7.1 Notices. Any and all notices, deliveries and other communications permitted or required to be made under this Agreement shall be in writing, signed by the person giving such notice, delivery or other communication and shall be delivered personally, or sent by registered or certified mail, or sent by email to the Party, at the address set forth in the opening paragraph of this Agreement or at such other address as may be supplied in writing.

Notices sent to Longboard shall be sent to the attention of:

Longboard Pharmaceuticals, Inc.
6154 Nancy Ridge Drive
San Diego, CA 92121
Attn: Chief Executive Officer

and if sent by email shall be sent to [●] .

Notices sent to Arena shall be sent to the attention of:

Arena Pharmaceuticals, Inc.
6154 Nancy Ridge Drive
San Diego, CA 92121
Attention: General Counsel

and if sent by email shall be sent to legal@arenapharm.com.

In either case of notice to Longboard or notice to Arena, a copy of such notice shall also be sent to:

Cooley LLP
4401 Eastgate Mall
San Diego, CA 92121 USA
Attention: L. Kay Chandler
Email: kchandler@cooley.com

The date of personal delivery or the date of mailing or emailing, as the case may be, shall be the date of such notice, delivery or communication.

7.2 Successors and Assigns. Except as expressly provided hereunder, neither this Agreement nor any rights or obligations hereunder may be assigned or otherwise transferred by any Party without the prior written consent of Longboard (in the case of a proposed assignment or transfer by Arena) or by Arena (in the case of a proposed assignment or transfer by Longboard), in either case which consent shall not be unreasonably withheld; provided, however, that either Party may assign this Agreement and its rights and obligations hereunder without the other Party's consent in connection with the transfer or sale of all or substantially all of such Party's business or assets to which this Agreement relates to a Third Party, whether by merger, sale of stock, sale of assets or otherwise. 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. Any assignment not in accordance with this Agreement shall be void.

7.3 Amendment. No change, modification, or amendment of this Agreement shall be valid or binding on the Parties unless such change or modification shall be in writing signed by both Parties.

7.4 Remedies Cumulative. The remedies of the Parties under this Agreement are cumulative and shall not exclude any other remedies to which a Party may be lawfully entitled.

7.5 Force Majeure. Except for the payment, expenditure or contribution of money, neither Party shall be liable for delay or failure in the performance of any of its obligations hereunder if such delay or failure is due to causes beyond its reasonable control, including acts of God, epidemic, pandemic, fires, earthquakes, acts of war, terrorism, or civil unrest; provided, however, that the affected Party promptly notifies the other Party and further provided that the affected Party shall use commercially reasonable efforts to avoid or remove such causes of non-performance and to mitigate the effect of such occurrence, and shall continue performance with the utmost dispatch whenever such causes are removed. When such circumstances arise, the Parties shall negotiate in good faith any modifications of the terms of this Agreement that may be necessary or appropriate in order to arrive at an equitable solution.

7.6 No Waiver. The failure of any Party to insist on strict performance of a covenant hereunder, or of any obligation hereunder, shall not be a waiver of such Party's right to demand strict compliance therewith in the future, nor shall the same be construed as a novation of this Agreement.

7.7 Integration. This Agreement and any Exhibits constitute the full and complete agreement of the Parties as to the subject matter hereof.

7.8 Insurance. Each Party agrees to maintain during the Term usual and customary liability and workers compensation insurance, and to the extent customary in the industry for a company the size of such Party errors and omissions insurance, in each case in amounts consistent with industry standards and to provide a certificate of insurance evidencing such coverage to the other Party upon request.

7.9 Interpretation.

(a) The definitions of the terms herein shall apply equally to the singular and plural forms of the terms defined. Whenever the context may require, any pronoun shall include the corresponding masculine, feminine and neuter forms. The word "will" shall be construed to have the same meaning and effect as the word "shall", and vice versa. The word "any" shall mean "any and all" unless otherwise clearly indicated by context. The word "including" will be construed as "including without limitation." The word "or" is disjunctive but not necessarily exclusive.

(b) Unless the context requires otherwise, (i) any definition of or reference to any agreement, instrument or other document herein shall be construed as referring to such agreement, instrument or other document as from time to time amended, supplemented, or otherwise modified (subject to any restrictions on such amendments, supplements, or modifications set forth herein or therein), (ii) any reference to any Applicable Laws herein shall be construed as referring to such Applicable Laws as from time to time enacted, repealed or amended, (iii) any reference herein to any Person shall be construed to include such Person's successors and assigns, and (iv) all references herein to Sections or Exhibits, unless otherwise specifically provided, shall be construed to refer to Sections and Exhibits of this Agreement.

(c) Headings and captions are for convenience only and are not be used in the interpretation of this Agreement.

7.10 Counterparts. This Agreement may be executed in any number of counterparts, each of which shall be an original, but all of which together shall constitute one instrument. Counterparts may be delivered via facsimile, electronic mail (including pdf or any electronic signature complying with the U.S. federal ESIGN Act of 2000, Uniform Electronic Transactions Act or other Applicable Law) or other transmission method and any counterpart so delivered will be deemed to have been duly and validly delivered and be valid and effective for all purposes.

7.11 Choice of Law. This Agreement shall be governed by, enforced, and shall be construed in accordance with the laws of the State of California without regard to any conflict of laws provision that would result in the application of the laws of any State other than the State of California and excluding the United Nations Convention on Contracts for the International Sale of Goods; provided, however, that with respect to matters involving the enforcement of rights in or to Intellectual Property, the Applicable Laws of the applicable country shall apply.

7.12 Severability. In the event any provision, clause, sentence, phrase, or word hereof, or the application thereof in any circumstances, is held to be invalid or unenforceable, such invalidity or unenforceability shall not affect the validity or enforceability of the remainder hereof, or of the application of any such provision, sentence, clause, phrase, or word in any other circumstances.

7.13 Costs and Expenses. Unless otherwise provided in this Agreement, each Party shall bear all fees and expenses incurred in performing its obligations under this Agreement.

7.14 Independent Contractors. Each Party is an independent contractor under this Agreement. Nothing contained herein is intended or is to be construed so as to constitute the Parties as partners, agents or joint venturers. Neither Party shall have any express or implied right or authority to assume or create any obligations on behalf of or in the name of the other Party or to bind the other Party to any contract, agreement or undertaking with any Third Party. There are no express or implied Third Party beneficiaries hereunder.

7.15 License Agreement. For the avoidance of doubt, nothing in this Agreement, including Sections 3 and 4, shall supersede or replace the rights, obligations or agreements of the Parties under the License Agreement.

*[The remainder of this page intentionally left blank]*f

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed on the date first written above by their duly authorized officers.

ARENA PHARMACEUTICALS, INC.

By: /s/ Amit D. Munshi
Name: Amit D. Munshi
Title: President and Chief Executive Officer

Date: October 27, 2020

LONGBOARD PHARMACEUTICALS, INC.

By: /s/ Kevin Lind
Name: Kevin Lind
Title: President and Chief Executive Officer

Date: October 27, 2020

SIGNATURE PAGE TO SERVICES AGREEMENT

EXHIBIT A
DESCRIPTION OF SERVICES

EXHIBIT B
SERVICES FEES

EXHIBIT B-1

RATE CHANGE NOTIFICATION

EXHIBIT C

ASSUMED CONTRACTS

EXHIBIT D

THIRD PARTY CONTRACTS