Filed Pursuant to Rule 424(b)(4)
Registration No. 333-253329

PROSPECTUS

5,000,000 Shares

Longboard Pharmaceuticals, Inc.

Common Stock
$16.00 per share

This is the initial public offering of our common stock. We are selling 5,000,000 shares of our common stock. The initial public offering price is $16.00 per share. Our common stock has been approved for listing on the Nasdaq Global Market under the symbol "LBPH."

We have granted the underwriters the option to purchase up to an additional 750,000 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.

We have two classes of common stock: the voting common stock offered hereby and non-voting common stock. The rights of the holders of common stock and non-voting common stock are identical, except with respect to voting and conversion. Each share of common stock is entitled to one vote and is not convertible into any other class of our share capital. Shares of non-voting common stock are non-voting, except as may be required by law. Each share of non-voting common stock may be converted at any time into one share of common stock at the option of its holder, subject to the beneficial ownership limitations provided for in our amended and restated certificate of incorporation. See "Description of Capital Stock" on page 156 of this prospectus for more information on the rights of the holders of our common stock and non-voting common stock. We are offering voting common stock in this offering, and unless otherwise noted, all references in this prospectus to our "common stock" refers to our voting common stock.

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	$ 16.00	$ 80,000,000
Underwriting Discount[1]	$ 1.12	$ 5,600,000
Proceeds to Longboard Pharmaceuticals, Inc. (before expenses)	$ 14.88	$ 74,400,000

(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 March 16, 2021 through the book entry facilities of The Depository Trust Company.

Citigroup **Evercore ISI** **Guggenheim Securities** **Cantor**

March 11, 2021

TABLE OF CONTENTS

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, 5-hydroxytryptamine 2c receptor subtype (5-HT2c) superagonist, that we are advancing in a multiple-ascending dose (MAD) portion of a Phase 1 clinical trial 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 the first quarter of 2022;
- LP143, a centrally acting, 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, sphingosine-1-phosphate (S1P) receptor subtypes 1 and 5 (S1P1,5) modulator in IND-enabling studies for central nervous system (CNS) neuroinflammatory diseases.

We also have additional earlier discovery stage compounds.

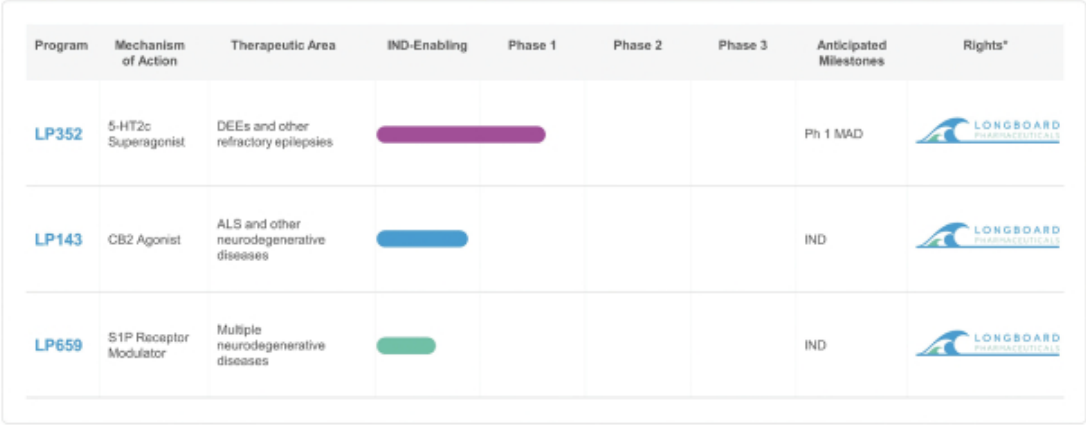
LP352, our most advanced product candidate, is an oral, centrally acting, 5-HT2c superagonist with negligible observed impact on 5-HT2b and 5-HT2a receptor subtypes in our preclinical studies to date. 5-HT2b and 5-HT2a receptor agonism have been associated with significant adverse side effects, including valvular heart disease and pulmonary arterial hypertension in the case of the 5-HT2b receptor, and hallucinations and mild to severe anxiety in the case of the 5-H2Ta receptor. LP352 has the potential to be a clinically differentiated 5-HT2c 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-HT2c 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-HT2b and 5-HT2a. 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-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 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 and other refractory epilepsies to continue to

receive lorcaserin. An expanded access program allows patients with an immediately life-threatening condition or serious disease or condition to gain access to an investigational medical product for treatment outside of clinical trials when no comparable or satisfactory alternative therapy options are available. 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 potential for high selectivity and novel chemistry may 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 CB2 agonist that showed 1,000 times greater selectivity for CB2 than CB1 in preclinical studies, and LP659, a S1P1,5 receptor agonist. Based on their novel chemistry, potential for high selectivity for specific subtypes of GPCRs and favorable blood-brain-barrier penetration, 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 potential selectivity and specificity could 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, 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, S1P1,5 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:



* 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, 5-HT2c 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. Based on a 2015 U.S. incidence rate for Dravet syndrome and a 2007 incidence rate for Lennox-Gastaut syndrome, there are an estimated 21,000 patients with Dravet syndrome and 47,000 patients with Lennox-Gastaut syndrome in the United States. Based on a 2021 European Union (EU) incidence rate, there are an estimated 21,000 patients with Dravet syndrome in the EU. The number of patients with Lennox-Gastaut syndrome in the EU is less known. LP352 selectively targets the 5-HT2c 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 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 (Cmax). No unexpected AEs were observed and no SAEs were reported. We initiated the MAD portion of this clinical trial in February 2021, and expect to report topline data for this portion in the second half of this year. We plan to initiate a Phase 1b/2a clinical trial in the first quarter of 2022, 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, 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 1,000-fold greater 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 the first quarter of 2022.

LP659

We are developing LP659, a centrally acting, 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. LP659 was designed to avoid 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 the second half of 2022.

Our Company History

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. LP352 was designed to be more specific and selective for the 5-HT2c subtype than lorcaserin. LP143 was designed to be a centrally acting agonist of CB2, while olorinab (another compound being developed by Arena) was designed to be a peripherally active agonist of CB2. Similarly, LP659 was designed to be a centrally acting, S1P1,5 receptor modulator with greater brain penetration than other compounds developed by Arena with a similar mechanism of action.

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 convertible preferred stock (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 closing 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	5,000,000 shares.
Common stock and non-voting common stock to be outstanding immediately after this offering	16,916,990 shares (of which 13,287,590 shares will be common stock) or 17,666,990 shares (of which 14,037,590 shares will be common stock) 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 750,000 shares of our common stock. The underwriters can exercise this option at any time within 30 days after the date of this prospectus.
Exchange	We have entered into an Exchange Agreement, dated March 5, 2021, with certain holders of our Series A preferred stock (Exchange Agreement), pursuant to which we agreed to issue, immediately prior to the closing of this offering, newly issued shares of our non-voting common stock in exchange for outstanding shares of our Series A preferred stock, in an amount such that shares held by such holder, including any shares purchased in this offering and shares of voting common stock issued upon conversion of Series A preferred stock, will result in such holder beneficially owning not more than 9.99% of our common stock as of immediately following the closing of this offering. See “Certain Relationships and Related Person Transactions—Exchange Agreement” for additional information.
Use of proceeds	We estimate that our net proceeds from this offering will be approximately $72.1 million (or approximately $83.2 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. 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, 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.
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 and non-voting common stock to be outstanding immediately after this offering set forth above is based on 11,916,990 shares of our common stock and non-voting common stock outstanding as of December 31, 2020, including 348,450 shares subject to repurchase, and assumes (i) the issuance of 3,629,400 shares of non-voting common stock in exchange for 2,630,000 shares of Series A preferred stock pursuant to the Exchange Agreement (the Exchange) and (ii) the automatic conversion of 2,970,000 outstanding shares of our Series A preferred stock into 4,098,600 shares of our common stock upon the closing of this offering, and excludes:

- 873,264 shares of our common stock issuable upon the exercise of outstanding stock options as of December 31, 2020, with a weighted-average exercise price of $3.42 per share;
- 194,269 shares of our common stock issuable upon the exercise of outstanding stock options granted after December 31, 2020, with a weighted average exercise price of $8.46 per share;
- 1,766,699 shares of our common stock reserved for future issuance under our 2021 Equity Incentive Plan (2021 Plan), which became 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
- 353,339 shares of our common stock reserved for issuance under our 2021 Employee Stock Purchase Plan (ESPP), which became 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; and
- 110,933 shares of our common stock issuable upon the exercise of stock options granted to certain of our directors and employees under our 2021 Plan upon the effectiveness of the registration statement of which this prospectus forms a part, with an exercise price per share that is equal to the price per share at which our common stock is first sold to the public in this offering.

In addition, unless we specifically state otherwise, the information in this prospectus assumes or gives effect to:

- the issuance of 3,629,400 shares of non-voting common stock in exchange for 2,630,000 shares of Series A preferred stock in the Exchange;
- the automatic conversion of 2,970,000 outstanding shares of our Series A preferred stock into an aggregate of 4,098,600 shares of our common stock upon 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 750,000 shares of common stock from us in this offering;
- a 1.38-for-1 forward stock split of our common stock effected on March 5, 2021; and
- the filing and effectiveness of our amended and restated certificate of incorporation and the adoption of our amended and restated bylaws upon the closing of this offering.

Summary Financial Data

The following tables set forth a summary of our financial data as of, and for the period ended on, the date indicated. The statement of operations and comprehensive loss data for the period from January 3, 2020 (inception) through December 31, 2020, and the balance sheet data as of December 31, 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" 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.

	Period from January 3, 2020 (Inception) through December 31, 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 $1,025)	$ 4,633
General and administrative (includes related party amounts of $8,295)[1]	9,767
Total operating expenses	14,400
Loss from operations	(14,400)
Net loss and comprehensive loss	$ (14,400)
Net loss per share, basic and diluted[2]	$ (3.78)
Weighted-average number of shares used in computing net loss per share, basic and diluted[2]	3,808,887

(1) General and administrative expense for the period includes a one-time expense of $7.4 million related to the acceleration of vesting and the extension of the exercise period for our President and Chief Executive Officer's, Kevin R. Lind's, equity awards outstanding at Arena. See Note 7 to our financial statements included elsewhere in this prospectus for additional information.

(2) 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 December 31, 2020		
	Actual	Pro Forma[1]	Pro Forma, As Adjusted[2]
	(in thousands)		(unaudited)
Balance Sheet Data:			
Cash	$ 55,316	$ 55,316	$ 127,366
Working capital[3]	52,227	52,227	124,277
Total assets	56,238	56,238	127,412
Total liabilities	3,135	3,135	3,135
Series A preferred stock	55,795	—	—
Non-voting common stock	—	—	—
Additional paid in capital	11,708	67,502	138,676
Accumulated deficit	(14,400)	(14,400)	(14,400)
Total stockholders' (deficit) equity	(2,692)	53,103	124,277

(1) Gives effect to (i) the Exchange, and the related reclassification of the carrying value of the shares of Series A preferred stock exchanged in the Exchange to permanent equity, (ii) the automatic conversion of 2,970,000 outstanding shares of our Series A preferred stock into 4,098,600 shares of our common stock, and the related reclassification of the carrying value of such shares of our Series A preferred stock to permanent equity, which will occur upon the closing of this offering, and (iii) filing and effectiveness of our amended and restated certificate of incorporation that will be in effect upon the closing of this offering.

(2) Gives effect to (i) the items described in footnote (1) above and (ii) the issuance and sale of 5,000,000 shares of our common stock in this offering at the initial public offering price of $16.00 per share, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

(3) 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) through December 31, 2020, we reported a net loss of $14.4 million. As of December 31, 2020, we had an accumulated deficit of $14.4 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

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 closing 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 December 31, 2020, our cash was $55.3 million. We believe, based on our current operating plan, that the net proceeds from this offering, together with our existing cash and cash equivalents, will be sufficient to fund our operations for at least the next 24 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 investigating LP352 in a Phase 1 clinical trial for which the SAD portion has been completed. We initiated the MAD portion of this clinical trial in February 2021 and while we expect to report topline data for the MAD portion of the clinical trial in the second half of 2021, 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;
- 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 or in the treatment of pediatric patients. 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 participants, 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;
- participants 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;

- 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 are advancing the MAD portion of the Phase 1 clinical trial for LP352 for the treatment of DEEs and other epileptic diseases in healthy volunteers, 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 the first quarter of 2022. 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 participants. 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, 5-HT2c superagonist with negligible observed impact on 5-HT2b and 5-HT2a receptor subtypes in our preclinical studies to date. 5-HT2b and 5-HT2a receptor subtypes have been known to be associated with significant adverse side effects, including valvular heart disease and pulmonary arterial hypertension in the case of the 5-HT2b receptor, and hallucinations and mild to severe anxiety in the case of the 5-H2Ta receptor. LP352 has the potential to be a clinically differentiated 5-HT2c 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. 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 this clinical trial, the FDA concluded that the risks of lorcaserin outweigh the benefits, and requested that lorcaserin be withdrawn from the market for the approved indication of weight management. 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 potential for 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. Further, in nonclinical toxicity studies of LP352 in rats and non-human primates (NHPs) conducted by Outpost Medicine, LLC prior to returning the product to Arena, certain male rats and NHPs of varying degrees of maturity in the respective high dose groups experienced minimal to slight degeneration/atrophy of the seminiferous tubules with reduced spermatocyte maturation. Although exposure levels for these high dose groups were estimated to be far in excess of planned human exposures in our clinical trials and no similar AEs were observed in our subsequent toxicity studies in sexually mature rats and NHPs, patients in future clinical trials may experience side effects similar to those observed in animals.

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 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. 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. To demonstrate the safety of our clinical products, we may also be required to conduct extensive clinical trials and nonclinical studies, some of which have not been initiated or completed, and may not be completed for several years. For example, we believe that we will need to conduct additional nonclinical studies in juvenile animals, as well as develop a liquid formulation, to support the evaluation of LP352 in pediatric populations. We also expect that we will need to conduct additional toxicology, long-term carcinogenicity and other nonclinical studies to support the safety evaluation of LP352 and any of our product candidates intended to be administered for an extended period of time. There is no assurance our development or these studies will be successful. In addition, 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.

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;
- 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-HT2c 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-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.

Although we aim to improve upon current 5-HT2c 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-HT2c 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-HT2c 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 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 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, other healthcare laws and regulations and data privacy and security laws and regulations, contractual obligations and self-regulatory schemes. 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, anesthesiologist assistants 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 personal information, including health-related 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. By way of example, California enacted the California Consumer Privacy Act (CCPA), effective January 1, 2020, which gives California residents expanded rights to access and delete their personal information, opt out of certain personal information sharing, and receive detailed information about how their personal information is used. The CCPA provides for civil penalties for violations, as well as a private right of action for data breaches that is expected to increase data breach litigation. Moreover, a new privacy law, the California Privacy Rights Act (CPRA) was recently approved by California voters. The CCPA and CPRA may increase our compliance costs and potential liability. Further, the EU General Data Protection Regulation (GDPR) imposes obligations and restrictions on the collection and use of personal data relating to individuals in the European Economic Area (EEA) (including health data). The GDPR increases obligations with respect to clinical trials conducted in the EEA by expanding the definition of personal data and requiring changes to informed consent practices and more detailed notices for clinical trial participants and investigators.

In Europe, the GDPR, as well as EU and EEA Member State implementing legislations, apply to the collection and processing of personal data, including health-related information, in certain circumstances, by companies located outside of the EEA and processing personal data of individuals located within the EEA. EU and EEA Member States are also able to legislate separately on health and genetic data, and we must comply with these local laws where we operate. Additionally, Brexit took effect in January 2020, which will lead to further legislative and regulatory changes. While the Data Protection Act of 2018, that “implements” and complements the GDPR achieved Royal Assent on May 23, 2018 and is now effective in the United Kingdom, it is still unclear whether transfer of data from the EEA to the United Kingdom will remain lawful in the long term under GDPR. With the expiry of the transition period on December 31, 2020, companies will have to comply with the GDPR and the GDPR as incorporated into United Kingdom national law, which has the ability to separately fine up to the greater of £17.5 million or 4% of global turnover. The relationship between the United Kingdom and the European Union in relation to certain aspects of data protection law remains unclear, for example around how data can lawfully be transferred between each jurisdiction, which exposes us to further compliance risk. We may incur liabilities, expenses, costs, and other operational losses under GDPR and applicable EU Member States and the United Kingdom privacy laws in connection with any measures we take to comply with them. The Swiss Federal Act on Data Protection, or DPA, also applies to the collection and processing of personal data, including health-related information, by companies located in Switzerland, or in certain circumstances, by companies located outside of Switzerland. The DPA has been revised and adopted by Parliament, and the revised version and its revised ordinances are expected to enter into force in 2022. This revised law may result in an increase of costs of compliance, risks of noncompliance and penalties for noncompliance.

These data privacy and security laws impose strict obligations on the ability to process personal data, including health-related information, in particular in relation to their collection, use, disclosure and transfer. This includes several requirements relating to (i) obtaining, in some situations, the consent of the individuals to whom the personal data relates, (ii) the information provided to the individuals about how their personal data is used, (iii) ensuring the security and confidentiality of the personal data, (iv) the obligation to notify regulatory authorities and affected individuals of personal data breaches, (v) extensive internal privacy governance obligations, and (vi) obligations to honor rights of individuals in relation to their personal data (for example, the right to access, correct and delete their personal data). The GDPR prohibits the transfer of personal data to countries outside of the EEA, such as the United States, which are not considered by the European Commission to provide an adequate level of data protection. Switzerland has adopted similar restrictions under the DPA. Although there are legal mechanisms to allow for the transfer of personal data from the EEA and Switzerland to the United States, legal challenges in Europe to the mechanisms allowing companies to transfer personal data

from the EEA to the United States have resulted in further limitations on the ability to transfer personal data across borders. In particular, certain governments have been unable to reach agreement on or maintain existing mechanisms designed to support cross-border data transfers, such as the EU-U.S. and Swiss-U.S. Privacy Shield Frameworks. Specifically, on July 16, 2020, the Court of Justice of the European Union invalidated Decision 2016/1250 on the adequacy of the protection provided by the EU-U.S. Privacy Shield Framework. To the extent that we were to rely on the EU-U.S. Privacy Shield Framework, we will not be able to do so in the future, which could increase our costs and limit our ability to process personal data from the EU. The same decision also cast doubt on the ability to use one of the primary alternatives to the Privacy Shield, namely, the European Commission's Standard Contractual Clauses, to lawfully transfer personal data from Europe to the United States and most other countries. At present, there are few if any viable alternatives to the Privacy Shield and the Standard Contractual Clauses.

Compliance with U.S. and international data protection laws and regulations could require us to take on more onerous obligations in our contracts, restrict our ability to collect, use and disclose data, or in some cases, impact our ability to operate in certain jurisdictions. Failure to comply with these laws and regulations could result in government enforcement actions (which could include civil, criminal and administrative penalties), private litigation, and/or adverse publicity and could negatively affect our operating results and business. Moreover, clinical trial participants, employees and other individuals about whom we or our potential collaborators obtain personal information, as well as the providers who share this information with us, may limit our ability to collect, use and disclose the information. Claims that we have violated individuals' privacy rights, failed to comply with data protection laws, or breached our contractual obligations, even if we are not found liable, could be expensive and time-consuming to defend and could result in adverse publicity that could harm our business.

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, if any, to challenge, repeal, or replace the ACA will impact the ACA or 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 March 31, 2021, 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 closing 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;
- 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 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 good clinical practices (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 participants, 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 February 1, 2021, we had six 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 our common stock has been approved for listing 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 was 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;
- 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, current directors, greater than 5% holders, and their affiliates beneficially owned approximately 93.3% of our common stock as of December 31, 2020, assuming the automatic conversion of all 5,600,000 outstanding shares of our Series A preferred stock into 7,728,000 shares of our common stock upon the closing of this offering and giving no effect to the Exchange. Upon the closing of this offering, that same group will hold approximately 57.3% of our outstanding common stock, assuming (i) the issuance of 3,629,400 shares of non-voting common stock in exchange for 2,630,000 shares of Series A preferred stock pursuant to the Exchange, (ii) the automatic conversion of 2,970,000 outstanding shares of our Series A preferred stock into 4,098,600 shares of our common stock, and (iii) the sale of 5,000,000 shares of common

stock in this offering. 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 voting and non-voting 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 $8.65 per share, based on the initial public offering price of $16.00 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 58.8% of the total amount invested by stockholders since our inception, but will own only approximately 30.0% of the shares of voting and non-voting 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.”

The dual class structure of our common stock may limit your ability to influence corporate matters and may limit your visibility with respect to certain transactions.

The dual class structure of our common stock may limit your ability to influence corporate matters. Holders of our common stock are entitled to one vote per share, while holders of our non-voting common stock are not entitled to any votes. Nonetheless, each share of our non-voting common stock may be converted at any time into one share of our common stock at the option of its holder by providing written notice to us, subject to the limitations provided for in our amended and restated certificate of incorporation to become effective upon the closing of this offering. Consequently, if holders of our non-voting common stock following this offering exercise their option to make this conversion, this will have the effect of increasing the relative voting power of those prior holders of our non-voting common stock, and correspondingly decreasing the voting power of the holders of our common stock, which may limit your ability to influence corporate matters. Additionally, stockholders who hold, in the aggregate, more than 10% of our common stock and non-voting common stock, but 10% or less of our common stock, and are not otherwise an insider, may not be required to report changes in their ownership due to transactions in our non-voting common stock pursuant to Section 16(a) of the Exchange Act, and may not be subject to the short-swing profit provisions of Section 16(b) of the Exchange Act.

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

December 31, 2020, upon the closing of this offering we will have outstanding a total of 13,287,590 shares of common stock, which does not include the shares of our non-voting common stock that may be converted into an aggregate of 3,629,400 shares of our 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 closing of this offering, Arena will own 29.9% of our outstanding shares of common stock (or 28.3% if the underwriters exercise their option to purchase additional shares in full) or 23.5% of our common stock if all of our non-voting common stock is converted into 3,629,400 shares of our common stock (or 22.5% 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 11,916,990 shares of common stock will be eligible for sale in the public market (which number of shares includes the up to 3,629,400 shares of common stock issuable upon conversion our non-voting common stock), 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 7,728,000 shares of our common stock (including the shares of common stock issuable upon conversion of our non-voting 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.

Participation in this offering by certain of our existing stockholders and their affiliated entities may reduce the public float for our common stock.

If any of our existing stockholders and their affiliated entities purchase shares of our common stock in this offering, such purchases would reduce the available public float of our common stock because such purchasers would be restricted from selling such shares during the 180-day period following this offering and thereafter would be subject to volume limitations pursuant to restrictions under applicable securities laws. As a result, any purchase of shares of our common stock by our existing stockholders and their affiliated entities in this offering will reduce the liquidity of our common stock relative to what it would have been had these shares been purchased by investors that were not our stockholders.

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 5% of the total number of shares of our capital stock outstanding on December 31 of the preceding calendar year (determined on an as-converted to voting common stock basis, without regard to any limitations on the conversion of the non-voting common stock), 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) 1% of the total number of shares of our common stock outstanding (determined on an as-converted to voting common stock basis, without regard to any limitations on the conversion of the non-voting common stock) on the last day of the fiscal year before the date of the automatic increase and (ii) such number of shares of common stock that would cause the aggregate number of shares of common stock then reserved for issuance under the ESPP to equal 1,060,017 shares; provided that before the date of any such increase, our board of directors may determine that such increase will be for a lesser amount of shares. 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 closing 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 upon the closing of this offering, may delay or discourage transactions involving an actual or potential change in our control or change in our management, including transactions in which stockholders might otherwise receive a premium for their shares or transactions that our stockholders might otherwise deem to be in their best interests. Therefore, these provisions could adversely affect the price of our common stock. Among other things, our amended and restated certificate of incorporation and amended and restated bylaws 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 state, statutory and 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), including all causes of action asserted against any defendant to such complaint. For the avoidance of doubt, this provision is intended to benefit and may be enforced by us, our officers and directors, the underwriters to any offering giving rise to such complaint, and any other professional or entity whose profession gives authority to a statement made by that person or entity and who has prepared or certified any part of the documents underlying the offering.

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 begin 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 $72.1 million (or approximately $83.2 million if the underwriters' option to purchase additional shares of our common stock is exercised in full) based on the initial public offering price of $16.00 per share, after deducting underwriting discounts and commissions and estimated offering expenses payable by us.

We anticipate that we will use the net proceeds of this offering, together with our existing cash and cash equivalents, as follows:

- approximately $21.0 million to $25.0 million to fund our development of LP352, including through the completion of our planned Phase 1b/2a clinical trial in DEEs;
- approximately $9.0 million to $12.0 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 $7.0 million to $10.0 million to fund our development of LP659 across a range of CNS disorders associated with neuroinflammation; 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 and cash equivalents, will be sufficient to fund our operations for at least the next 24 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, filing requirements with and feedback from various regulatory agencies, the rate of patient enrollment in our planned clinical trials, 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 and cash equivalents, 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 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 December 31, 2020:

- on an actual basis;
- on a pro forma basis, giving effect to (i) the Exchange, and the related reclassification of the carrying value of the shares of Series A preferred stock exchanged in the Exchange to permanent equity, (ii) the automatic conversion of 2,970,000 outstanding shares of our Series A preferred stock into 4,098,600 shares of our common stock, and the related reclassification of the carrying value of such shares of our Series A preferred stock to permanent equity, which will occur upon the closing of this offering, and (iii) the filing and effectiveness of our amended and restated certificate of incorporation that will be in effect upon 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 5,000,000 shares of common stock in the offering at the initial public offering price of $16.00 per share, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

You should read this table together with "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 December 31, 2020		
	Actual	Pro Forma	Pro Forma, As Adjusted
	(in thousands, except share and per share amounts) (unaudited)		
Cash	$ 55,316	$ 55,316	$127,366
Series A convertible preferred stock, $0.0001 par value; 5,600,000 shares authorized, issued and outstanding, actual; and no shares authorized, issued or outstanding, pro forma and pro forma as adjusted	$ 55,795	$ —	$ —
Stockholders' equity (deficit):			
Preferred stock, $0.0001 par value; no shares authorized, issued, and outstanding, actual, and 10,000,000 shares authorized, no shares issued and outstanding, pro forma and pro forma as adjusted	—	—	—
Common stock, $0.0001 par value; 10,500,000 shares authorized, 4,188,990 shares issued and outstanding, including 348,450 shares subject to repurchase, actual, 300,000,000 shares authorized, 8,287,590 shares issued and outstanding, including 348,450 shares subject to repurchase, pro forma; 300,000,000 shares authorized, 13,287,590 shares issued and outstanding, pro forma as adjusted	—	—	1
Non-voting common stock, $0.0001 par value—no shares authorized, issued and outstanding, actual; 10,000,000 shares authorized, pro forma and pro forma as adjusted; 3,629,400 shares issued and outstanding, pro forma and pro forma as adjusted	—	—	—
Additional paid-in capital	11,708	67,502	138,676
Accumulated deficit	(14,400)	(14,400)	(14,400)
Total stockholders' equity (deficit)	(2,692)	53,103	124,277
Total capitalization	$ 53,103	$ 53,103	$124,277

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 December 31, 2020 would be $138.5 million, $149.8 million, $135.4 million, $135.4 million and 14,037,590, respectively.

The number of shares of our common stock and non-voting common stock to be outstanding immediately after this offering, pro forma and pro forma as adjusted, reflected in the table above is based on 11,916,990 shares of our common stock and non-voting common stock outstanding as of December 31, 2020, after giving effect to (i) the Exchange and (ii) the automatic conversion of 2,970,000 outstanding shares of our Series A preferred stock into 4,098,600 shares of our common stock upon the closing of this offering, and excludes:

- 873,264 shares of our common stock issuable upon the exercise of outstanding stock options as of December 31, 2020, with a weighted-average exercise price of $3.42 per share;
- 194,269 shares of our common stock issuable upon the exercise of outstanding stock options granted after December 31, 2020, with a weighted average exercise price of $8.46 per share;
- 1,766,699 shares of our common stock reserved for future issuance under our 2021 Plan, which became 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";
- 353,339 shares of our common stock reserved for issuance under our ESPP, which became 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; and
- 110,933 shares of our common stock issuable upon the exercise of stock options granted to certain of our directors and employees under our 2021 Plan upon the effectiveness of the registration statement of which this prospectus forms a part, with an exercise price per share that is equal to the price per share at which our common stock is first sold to the public in this offering.

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 December 31, 2020, we had a historical net tangible book value (deficit) of $(3.57) million, or $(0.85) per share of common stock based on 4,188,990 shares of common stock, including 348,450 shares subject to repurchase, and no shares of non-voting common stock outstanding as of such date. Our historical net tangible book value (deficit) per share represents total tangible assets less total liabilities and Series A preferred stock, which is not included within permanent equity, divided by the number of shares of common stock outstanding at December 31, 2020.

Our pro forma net tangible book value as of December 31, 2020 was $52.2 million, or $4.38 per share, after giving effect to (i) the Exchange, and the related reclassification of the carrying value of the shares of Series A preferred stock exchanged in the Exchange to permanent equity, (ii) the automatic conversion of 2,970,000 outstanding shares of our Series A preferred stock into 4,098,600 shares of our common stock, and the related reclassification of the carrying value of such shares of our Series A preferred stock to permanent equity, which will occur upon the closing of this offering, and (iii) the filing and effectiveness of our amended and restated certificate of incorporation upon the closing of this offering.

After giving effect to the sale by us of 5,000,000 shares of common stock in this offering at the initial public offering price of $16.00 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 December 31, 2020 would have been $124.3 million, or $7.35 per share. This amount represents an immediate increase in pro forma as adjusted net tangible book value of $2.97 per share to our existing stockholders and an immediate dilution in pro forma as adjusted net tangible book value of $8.65 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:

Initial public offering price per share		$16.00
Historical net tangible book value (deficit) per share as of December 31, 2020	$(0.85)	
Pro forma increase in historical net tangible book value (deficit) per share attributable to the pro forma transactions described in the preceding paragraphs	5.23	
Pro forma net tangible book value per share as of December 31, 2020	4.38	
Increase in pro forma as adjusted net tangible book value per share attributable to investors purchasing shares in this offering	2.97	
Pro forma as adjusted net tangible book value per share after this offering		7.35
Dilution in pro forma as adjusted net tangible book value per share to investors purchasing shares in this offering		$ 8.65

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 $7.67 per share, and the dilution in pro forma net tangible book value per share to investors in this offering would be $8.33 per share.

The foregoing discussion and table above (other than the historical net tangible book value (deficit) calculation) are based on 11,916,990 shares of our common stock and non-voting common stock outstanding as of December 31, 2020, after giving effect to (i) the Exchange and (ii) the automatic conversion of 2,970,000 outstanding shares of our Series A preferred stock into 4,098,600 shares of our common stock upon the closing of this offering, and excludes:

- 873,264 shares of our common stock issuable upon the exercise of outstanding stock options as of December 31, 2020, with a weighted-average exercise price of $3.42 per share;

- 194,269 shares of our common stock issuable upon the exercise of outstanding stock options granted after December 31, 2020, with a weighted average exercise price of $8.46 per share;
- 1,766,699 shares of our common stock reserved for future issuance under our 2021 Plan, which became 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”;
- 353,339 shares of our common stock reserved for issuance under our ESPP, which became 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; and
- 110,933 shares of our common stock issuable upon the exercise of stock options granted to certain of our directors and employees under our 2021 Plan upon the effectiveness of the registration statement of which this prospectus forms a part, with an exercise price per share that is equal to the price per share at which our common stock is first sold to the public in this offering.

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.

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

You should read the following discussion and analysis of our financial condition and results of operations together with our financial statements and 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 "Special Note Regarding Forward-Looking Statements."

Overview

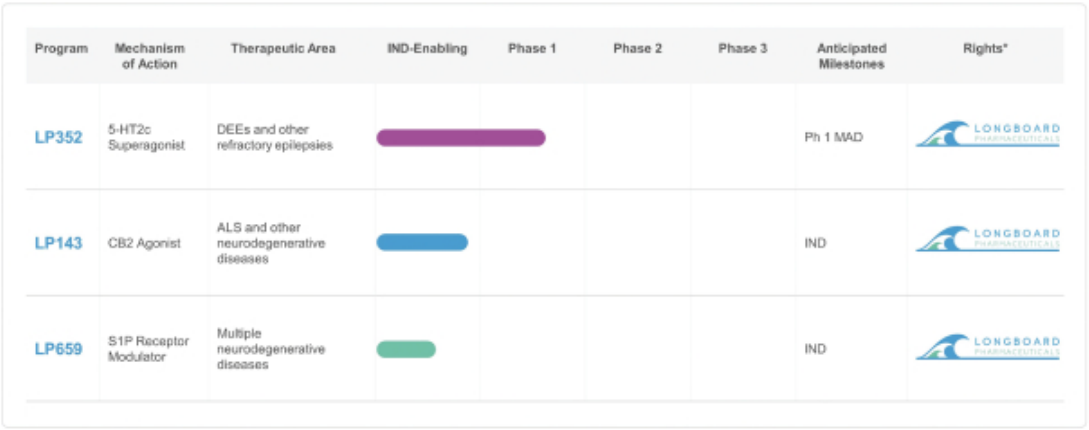
We are a clinical-stage biopharmaceutical company focused on developing novel, transformative medicines for neurological diseases. We were formed in January 2020 by Arena to advance a portfolio of centrally acting product candidates designed to be highly selective for specific GPCRs. Our small molecule 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, 5-HT2c superagonist, that we are advancing in a MAD portion of a Phase 1 clinical trial 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 the first quarter of 2022;
- LP143, a centrally acting, full CB2 agonist in IND-enabling studies for neurodegenerative diseases associated with neuroinflammation caused by microglial activation, including ALS; and
- LP659, a centrally acting, 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:



* 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. 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. As of December 31, 2020, we had cash of $55.3 million.

Based on our current operating plan, we estimate that the net proceeds from this offering and our existing cash and cash equivalents will be sufficient to fund our operating expenses and capital expenditure requirements through at least the next 24 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 $14.4 million for the period from January 3, 2020 (inception) through December 31, 2020. Included in our net loss for the period from January 3, 2020 (inception) through December 31, 2020 was a one-time expense of $7.4 million related to the acceleration of vesting and the extension of the exercise period for Mr. Lind's equity awards outstanding at Arena. As of December 31, 2020, we had an accumulated deficit of $14.4 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, in all countries and territories of the world (Territory) owed or otherwise payable to 356 Royalty by Eisai pursuant to a Transaction Agreement dated December 28, 2016, as amended (Transaction Agreement), by and among 356 Royalty and Eisai, for an upfront payment of approximately $121,000. For a more detailed description of the Transaction Agreement, see the section of this prospectus entitled “Certain Relationships and Related Person Transactions—Agreements with Arena.” 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 preclinical studies and clinical trials; 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. In 2020, we incurred a one-time expense of $7.4 million related to the acceleration of vesting and the extension of the exercise period for Mr. Lind's equity awards outstanding at Arena. Other significant costs include legal fees relating to corporate matters, professional fees for accounting and consulting services and facility-related costs.

We expect that our ongoing 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 December 31, 2020

The following table summarizes our results of operations for the period from January 3, 2020 (inception) through December 31, 2020:

	Period from January 3, 2020 (Inception) through December 31, 2020 (in thousands)
Operating expenses:	
Research and development (includes related party amounts of $1,025)	$ 4,633
General and administrative (includes related party amounts of $8,295)	9,767
Total operating expenses	14,400
Loss from operations	(14,400)
Net loss and comprehensive loss	$ (14,400)

Research and Development Expenses

The following table summarizes our research and development expenses for the period from January 3, 2020 (inception) through December 31, 2020:

	Period from January 3, 2020 (Inception) through December 31, 2020 (in thousands)
Direct costs:	
LP352	$ 1,266
Preclinical programs	2,452
Indirect costs:	
Personnel-related	720
Lorcaserin royalty related expense	121
All other	74
Total research and development expenses	$ 4,633

Research and development expenses were $4.6 million for the period from January 3, 2020 (inception) through December 31, 2020. These expenses include $2.5 million in preclinical expenses related to advancing LP143 and LP659, $1.3 million in clinical trial expenses related to LP352, $0.7 million in personnel-related expenses and $0.1 million related to the expense for the Royalty Purchase Agreement.

General and Administrative Expenses

General and administrative expenses were $9.8 million for the period from January 3, 2020 (inception) through December 31, 2020. These expenses include $7.4 million related to stock-based compensation expense for the one-time expense related to the acceleration of vesting and the extension of the exercise period for Mr. Lind's equity awards outstanding at Arena, $1.6 million of personnel-related costs and $0.8 million of professional services and legal 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 in October 2020. As of December 31, 2020, we had cash of $55.3 million. 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 and cash equivalents, 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 24 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
- 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 December 31, 2020:

	Period from January 3, 2020 (Inception) through December 31, 2020
	(in thousands)
Cash used in operating activities	$ (3,442)
Cash provided by financing activities	58,758
Net increase in cash	$ 55,316

Operating Activities

Net cash used in operating activities was $3.4 million for the period from January 3, 2020 (inception) through December 31, 2020 and was primarily due to our net loss of $14.4 million, adjusted for stock-based compensation expense of $8.5 million and a $2.5 million change in our operating assets and liabilities.

Financing Activities

Net cash provided by financing activities was $58.8 million for the period from January 3, 2020 (inception) through December 31, 2020 and was comprised primarily of net proceeds of $55.8 million from the sale and issuance of 5,600,000 shares of our Series A preferred stock in October 2020, and $3.2 million in 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 approximately $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

On October 27, 2020, our board of directors and stockholder approved the 2020 Plan. Under the 2020 Plan, stock-based awards are measured at fair value and recognized over the requisite service period. Forfeitures are accounted for in the period they occur. We estimate the fair value of each stock-based award on the date of grant using the Black-Scholes option pricing model which requires the input of subjective assumptions:

- *Fair value of common stock*. See the subsection entitled "—Determination of Fair Value of Common Stock" below.
- *Risk-free interest rate.* The risk-free interest rate is based on the U.S. Treasury yield in effect at the time of grant for zero coupon U.S. Treasury notes with maturities similar to the expected term of the awards.

- *Expected dividend yield*. We base the expected dividend yield assumption on the fact that we have never paid cash dividends and have no present intention to pay cash dividends and, therefore, used an expected dividend yield of zero.
- *Expected volatility*. Since we are not yet a public company and do not have a trading history for our common stock, the expected volatility assumption is based on volatilities of a peer group of similar companies whose share prices are publicly available. The peer group was developed based on companies in the biotechnology industry. We will continue to apply this process until a sufficient amount of historical information regarding the volatility of our own stock price becomes available.
- *Expected life*. The expected life represents the period of time that options are expected to be outstanding. Because we do not have historical exercise behavior, we determine the expected life assumption using the simplified method, for employees, which is an average of the contractual term of the option and its vesting period. The expected term for nonemployee options is equal to the contractual term.

From January 3, 2020 through October 26, 2020, employees participated in Arena's 2017 Amended and Restated Long Term Incentive Plan (Arena 2017 LTIP) and therefore we 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. There were no forfeitures.

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-Weighed 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 the biopharmaceutical 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.

As of December 31, 2020, the unrecognized stock-based compensation expense related to employee stock options was $2.9 million and is expected to be recognized as expense over a weighted-average period of approximately 3.4 years. The intrinsic value of all outstanding stock options as of December 31, 2020 was approximately $11.0 million, based on the public offering price of $16.00 per share, of which approximately $4.5 million related to exercisable options and approximately $6.5 million related to unexercisable options.

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 December 31, 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 December 31, 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 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, 5-hydroxytryptamine 2c receptor subtype (5-HT2c) superagonist, that we are advancing in a multiple-ascending dose (MAD) portion of a Phase 1 clinical trial 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 the first quarter of 2022;
- LP143, a centrally acting, 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, sphingosine-1-phosphate (S1P) receptor subtypes 1 and 5 (S1P1,5) 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, 5-HT2c superagonist with negligible observed impact on 5-HT2b and 5-HT2a receptor subtypes in our preclinical studies to date. 5-HT2b and 5-HT2a receptor agonism have been associated with significant adverse side effects, including valvular heart disease and pulmonary arterial hypertension in the case of the 5-HT2b receptor, and hallucinations and mild to severe anxiety in the case of the 5-H2Ta receptor. LP352 has the potential to be a clinically differentiated 5-HT2c 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-HT2c 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-HT2b and 5-HT2a. 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-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 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 and other refractory epilepsies to continue to receive lorcaserin. An expanded access program allows patients with an immediately life-threatening condition or serious disease or condition to gain access to an investigational medical product for treatment outside of clinical trials when no comparable or satisfactory alternative therapy options are available. 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 potential for high selectivity and novel chemistry may 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 CB2 agonist that showed 1,000 times greater selectivity for CB2 than CB1 in preclinical studies, and LP659, a S1P1,5 receptor agonist. Based on their novel chemistry, potential for high selectivity for specific subtypes of GPCRs and favorable blood-brain-barrier penetration, 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 potential selectivity and specificity could 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, 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, 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 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-HT2c Superagonist	DEEs and other refractory epilepsies					Ph 1 MAD	LONGBOARD PHARMACEUTICALS
LP143	CB2 Agonist	ALS and other neurodegenerative diseases					IND	LONGBOARD PHARMACEUTICALS
LP659	S1P Receptor Modulator	Multiple neurodegenerative diseases					IND	LONGBOARD PHARMACEUTICALS

* 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, 5-HT2c 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. Based on a 2015 U.S. incidence rate for Dravet syndrome and a 2007 incidence rate for Lennox-Gastaut syndrome, there are an estimated 21,000 patients with Dravet syndrome and 47,000 patients with Lennox-Gastaut syndrome in the United States. Based on a 2021 European Union (EU) incidence rate, there are an estimated 21,000 patients with Dravet syndrome in the EU. The number of patients with Lennox-Gastaut syndrome in the EU is less known. LP352 selectively targets the 5-HT2c 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 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 (Cmax). No unexpected AEs were observed and no SAEs were reported. We initiated the MAD portion of this clinical trial in February 2021, and expect to report topline data for this portion in the second half of this year. We plan to initiate a Phase 1b/2a clinical trial in the first quarter of 2022, 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, 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 1,000-fold greater 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 the first quarter of 2022.

LP659

We are developing LP659, a centrally acting, 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. LP659 was designed to avoid 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 the second half of 2022.

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 for the 5-HT2c subtype than lorcaserin. 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 (another compound being developed by Arena) was designed to be an oral peripherally active, 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 agonist of CB2. Similarly, LP659 was designed to be a centrally acting S1P1,5 receptor modulator with greater brain penetration than other compounds developed by Arena with a similar mechanism of action.

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 R. 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. Brandi Roberts joined as our Chief Financial Officer in January 2021. Ms. Roberts previously served as the Chief Financial Officer of Lineage Cell Therapeutics, Inc. REVA Medical, Inc. and Mast Therapeutics, Inc.

In October 2020, we completed a $56.0 million private placement of our Series A convertible preferred stock (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-HT2c 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 initiated the MAD portion of this clinical trial in February 2021. In addition, we expect data from the MAD portion in the second half of this year and intend to initiate a Phase 1b/2a clinical trial of LP352 in DEEs in the first quarter of 2022.
- ***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 the first quarter of 2022. 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 S1P1,5 receptor modulator

currently in IND-enabling studies for CNS diseases associated with neuroinflammation and we expect to submit an IND to the FDA in the second half of 2022. 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, 5-HT2c superagonist

We are developing LP352, an oral, centrally acting, 5-HT2c superagonist for DEEs and other epileptic disorders. LP352 is designed to selectively target 5-HT2c, 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 initiated the MAD portion of this clinical trial in February 2021, and expect to have data for this portion in the second half of this year. We plan to initiate a Phase 1b/2a clinical trial in the first quarter of 2022, 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-HT2c 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. Incidence 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 70% to 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 well-known than that of Dravet syndrome.

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

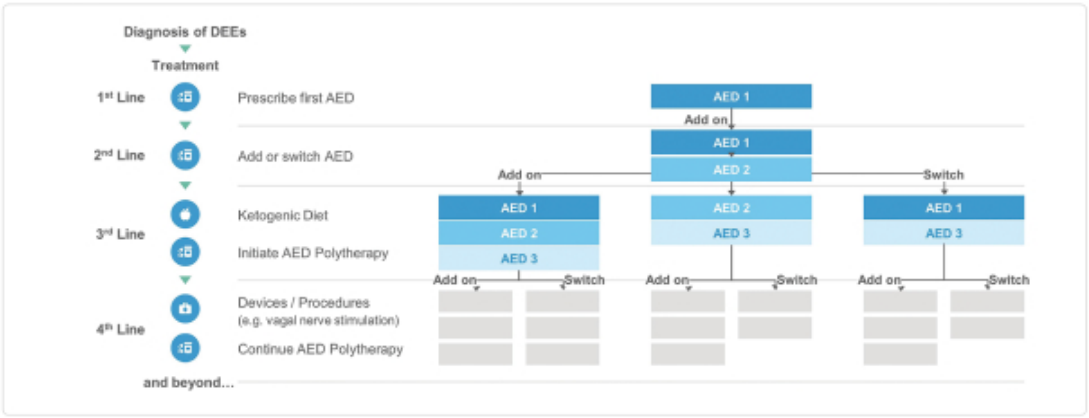
	Dravet Syndrome (DS)	Lennox-Gastaut Syndrome (LGS)	Doose Syndrome (myoclonic astatic epilepsy)	Childhood Absence Epilepsy	Refractory Generalized Clonic-Tonic
Prevalence	21k pts in US (1:15,000)	47k pts in US (1:7,000)	7k pts in US* (1:10,000 children)	47k pts in US* (1:1,553 children)	225k pts in US (1:1,466)
Age of onset	Birth – 1 year	3 – 5 years	18 mon – 6 years	4 – 7 years	5 - 40 years
Clinical Characteristics	• frequent episodes of prolonged seizures • increased risk of Sudden Unexplained Death in Epilepsy (SUDEP)	• developmental epileptic encephalopathy • multiple seizure types, cognitive regression, and an abnormal EEG	• generalized epilepsy syndrome of young children characterized by multiple seizure types • children are developmentally normal before the onset of epilepsy	• daily seizures characterized by staring spells during which the child is not responsive • may result in learning disabilities and memory loss	• loss of consciousness & then a scream with stiffening of the body • evolves into clonic jerking followed by postictal sleepiness, confusion, or agitation

* Children in the US under 18 years of age

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

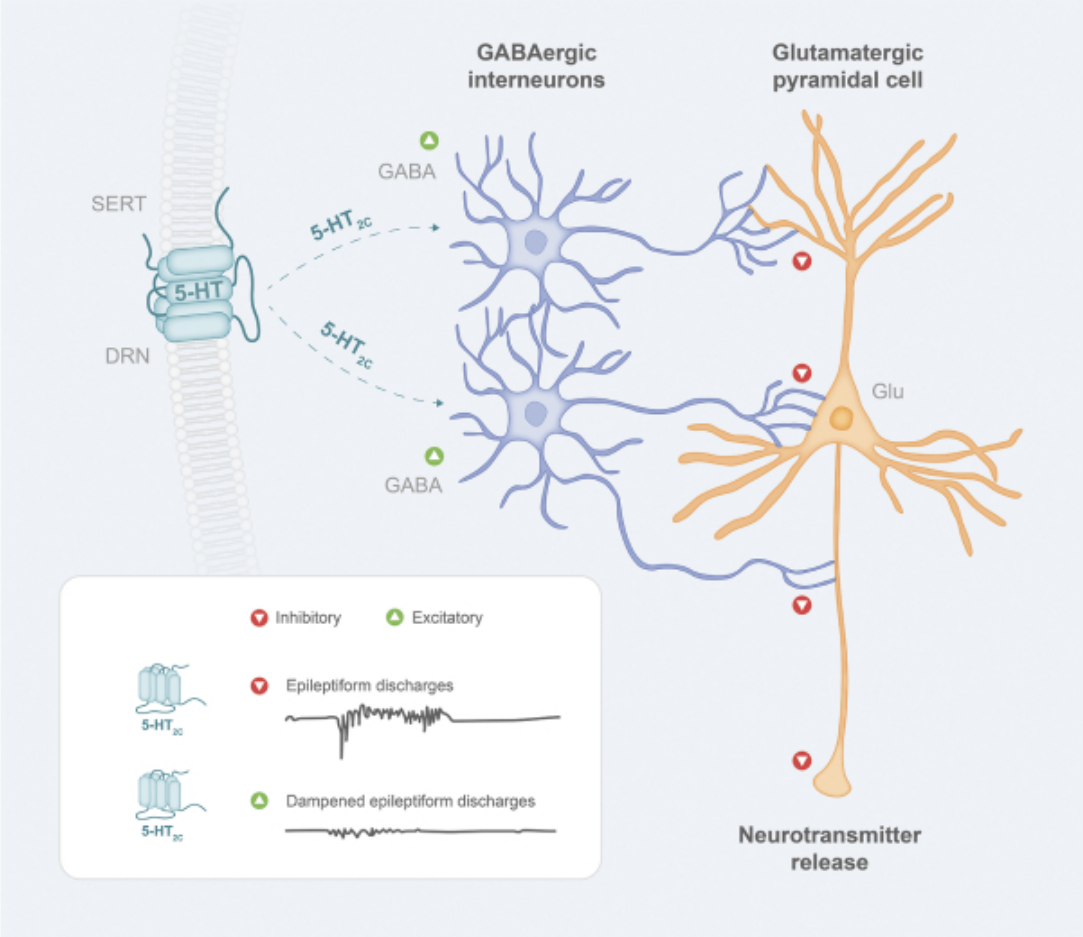
GABA is a principal neurotransmitter in the brain and binds to receptors inside and outside the synaptic gap. GABA plays key roles in neuronal inhibition, and reduction of GABA levels has been shown to result in a decline of this inhibition. Lack of GABA-mediated inhibition subsequently leads to the 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-HT2b receptor has been implicated with valvular heart disease and pulmonary arterial hypertension and the 5-HT2a receptor subtype has been implicated with hallucinations and mild to severe anxiety.

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 biological pathway and effect on neuronal electrical activity are illustrated in the below:



The 5-HT2 class and 5-HT2c subtype have additionally been shown in the clinic to reduce seizure frequencies.

Fenfluramine—Fenfluramine, a 5-HT2 agonist with activity on 5-HT2a, 5-HT2b and 5-HT2c 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 valvular heart disease and pulmonary arterial 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-HT2b 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-HT2c 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 this clinical trial, the FDA concluded that the risks of lorcaserin outweigh the benefits, and requested that lorcaserin be withdrawn from the market for the approved indication of weight management. 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 who each had an SCN1A gene mutation or a clinical diagnosis of Dravet syndrome, and failed at least two medications. Lorcaserin was initially dosed at 2.5 mg at bedtime and gradually increased weekly as needed to a maximum dose of 10 mg twice a day or 0.3 mg/kg/day, whichever occurred first. One patient was initially seizure-free for three weeks, one patient was seizure-free for two weeks, and a third patient had one to two seizure-free days per week. All five patients exhibited a reduction in the total number of seizures after three months on treatment.

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, 5-HT2c superagonist. A superagonist displays higher receptor signaling output than the natural agonist. As a 5-HT2c 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-HT2c 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-HT2c superagonist. We hold worldwide rights to LP352 through the Arena License Agreement.

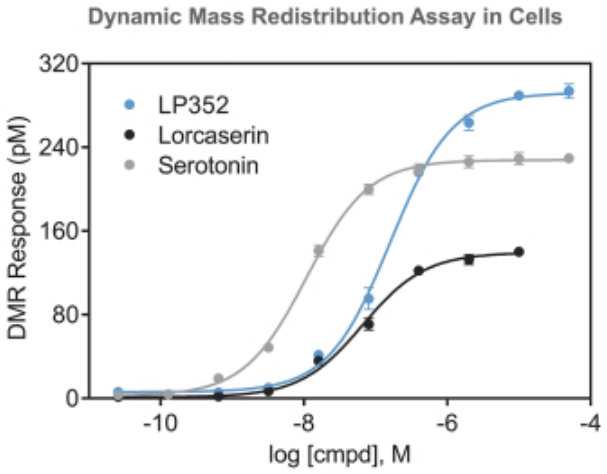
LP352 has demonstrated in *in vitro* preclinical studies selectivity on the 5-HT2c receptor subtype over the 5-HT2b and 5-HT2a receptor subtypes, as shown in the following table:

	Serotonin Receptor Subtype	EC_{50}, nM	Ki, nM	Selectivity 2c vs 2b	Selectivity 2c vs 2a
LP352 5-HT2c Superagonist	5-HT2c	~120	~50	>200x	>200x
	5-HT2b	>10,000	>10,000		
	5-HT2a	>10,000	>10,000		
Nordexfenfluramine[1] (an active metabolite of fenfluramine)	5-HT2c	72.4	10.4	0.94x	11.5x
	5-HT2b	25.7	9.8		
	5-HT2a	1778	120.2		
Lorcaserin[2]	5-HT2c	39	13	11.3x	7.1x
	5-HT2b	2380	147		
	5-HT2a	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. These data were generated from different studies, and caution should be exercised when comparing data across studies. However, each of these studies followed the same basic protocol using HEK293 cells expressing recombinant human 5-HT2 receptors, and receptor densities in all of the functional assays were determined by [^{125}I]-2,5-Dimethoxy-4-iodoamphetamine (DOI) radioligand binding.

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 added to cells and the resulting holistic integrated cellular response

LP352 Clinical Development Overview

LP352 is being evaluated in a Phase 1 clinical trial in healthy volunteers that consists of four 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 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. LP352 will be administered as a capsule formulation. The Phase 1 clinical trial will enroll approximately 80 to 112 healthy participants.

Part A SAD Results—The SAD portion of the clinical trial was completed by Outpost prior to the return of LP352 to Arena. Forty participants enrolled and completed the dosing period in Part A, with results available up to 96 hours post-dose. Overall, LP352 was observed to be generally well-tolerated, and AEs were consistent with events observed with other centrally acting 5-HT2c 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 participants dropped out due to AEs.

Part B Food Effect Results—Eight participants enrolled and completed Part B. Mean peak plasma concentrations and terminal half-life were both similar between fasted and fed dosing at 6 mg. While the attainment of Cmax was delayed by approximately 1.5 hours in the presence of food and the mean total plasma exposure (AUC) was increased by 24% when dosing an LP352 capsule under fed conditions, these results were not considered to be clinically meaningful differences in the plasma drug concentration-time profiles and PK (AUC and Cmax) of LP352 between fasting and postprandial capsule administration.

In the SAD and food effect portions of the clinical trial, LP352 demonstrated favorable PK and pharmacodynamic effects (with target plasma exposure (minimum serum concentration) measured based on prolactin levels), including dose dependent PK properties with proportional increases in AUC and Cmax.

Part C MAD—We are advancing the MAD portion of the Phase 1 clinical trial and expect to have data for this portion in the second half of 2021.

Part D Dose Titration—In Part D of this clinical trial, 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 participants 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 the first quarter of 2022, pending authorization to proceed under an IND we intend to submit to the FDA's Division of Neurology.

LP143, a centrally acting, full CB2 agonist

We are developing LP143, a centrally acting, 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 the first quarter of 2022.

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 as of 2015 and the prevalence in the EU is estimated at approximately 29,000 people as of 2015. 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.

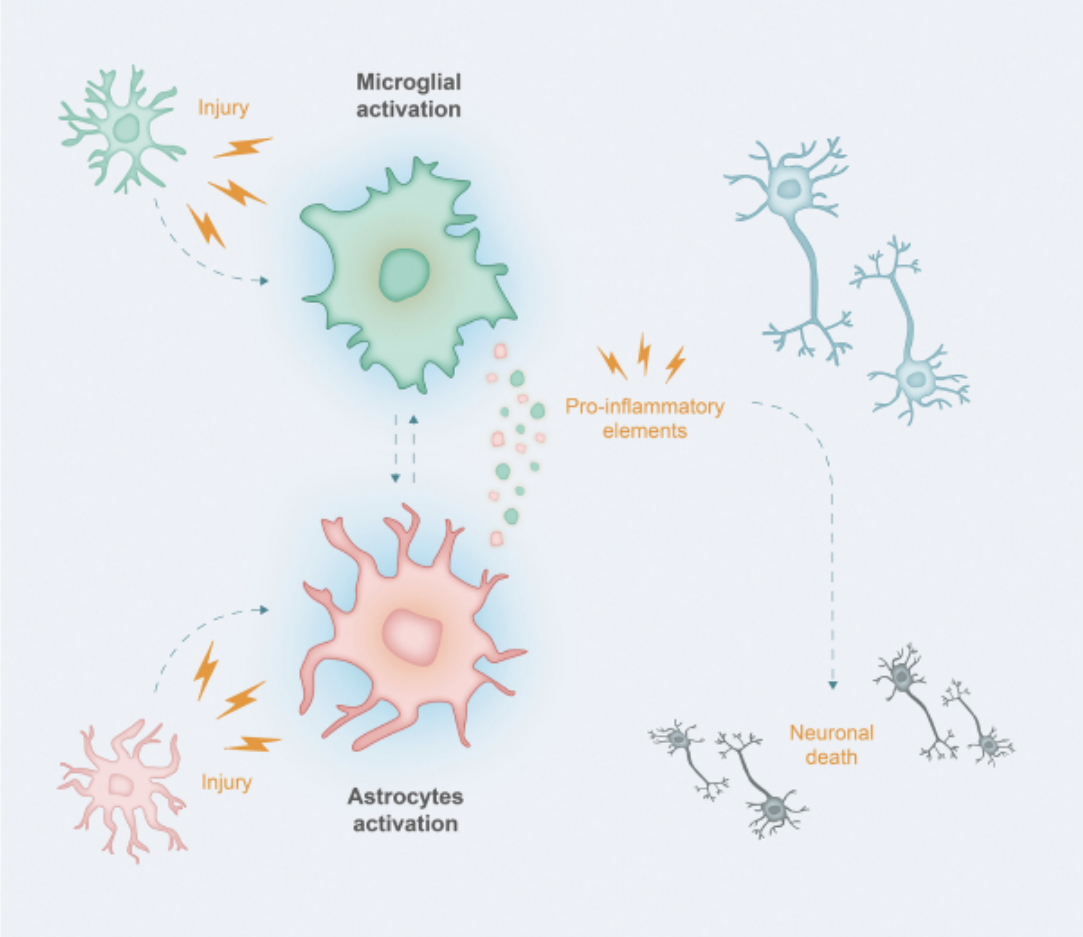
Current Treatment Paradigm—There is currently no cure for ALS. Rilutek (riluzole) and Radicava (edaravone) are the only FDA approved drugs to slow disease progression in ALS but there remains significant unmet medical need. Rilutek was approved by the FDA in 1995 as the first treatment for ALS. The approval 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 biological pathway 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, 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 1,000-fold greater selectivity for CB2 over CB1, sustained activity over the duration of treatment, and favorable blood-brain-barrier penetration. LP143 demonstrated sustained activity over the five day duration of treatment in a monosodium iodoacetate osteoarthritis model in rats ($n = 8$). Vehicle had no effect in the experiment, whereas morphine's activity was observed at Day 1, but had diminished by Day 3, and by Day 5 was non-existent, suggesting tachyphylaxis, or rapidly diminishing response to successive doses of a drug. The activity of LP143 remained significantly constant to vehicle from Day 1 to Day 5 indicating no tachyphylaxis compared to morphine ($p < 0.001$). LP143 is currently in IND-enabling studies and we anticipate submitting an IND to the FDA in the first quarter of 2022.

In the description of our preclinical studies above and elsewhere in this prospectus, n represents the number of subjects in a particular group and p or p-values represent the probability that random chance caused the result (e.g., a p-value of 0.001 means that there is a 0.1% probability that the difference between the placebo group and the treatment group is purely due to random chance). A p-value of less than or equal to 0.05 is a commonly used threshold for identifying statistically significant outcomes.

LP659, a centrally acting, S1P1,5 modulator

We are developing LP659, a centrally acting, S1P1,5 receptor modulator for neurodegenerative diseases. LP659 was designed for optimized pharmacology, PK and engagement of S1P1,5, which may lead to improved

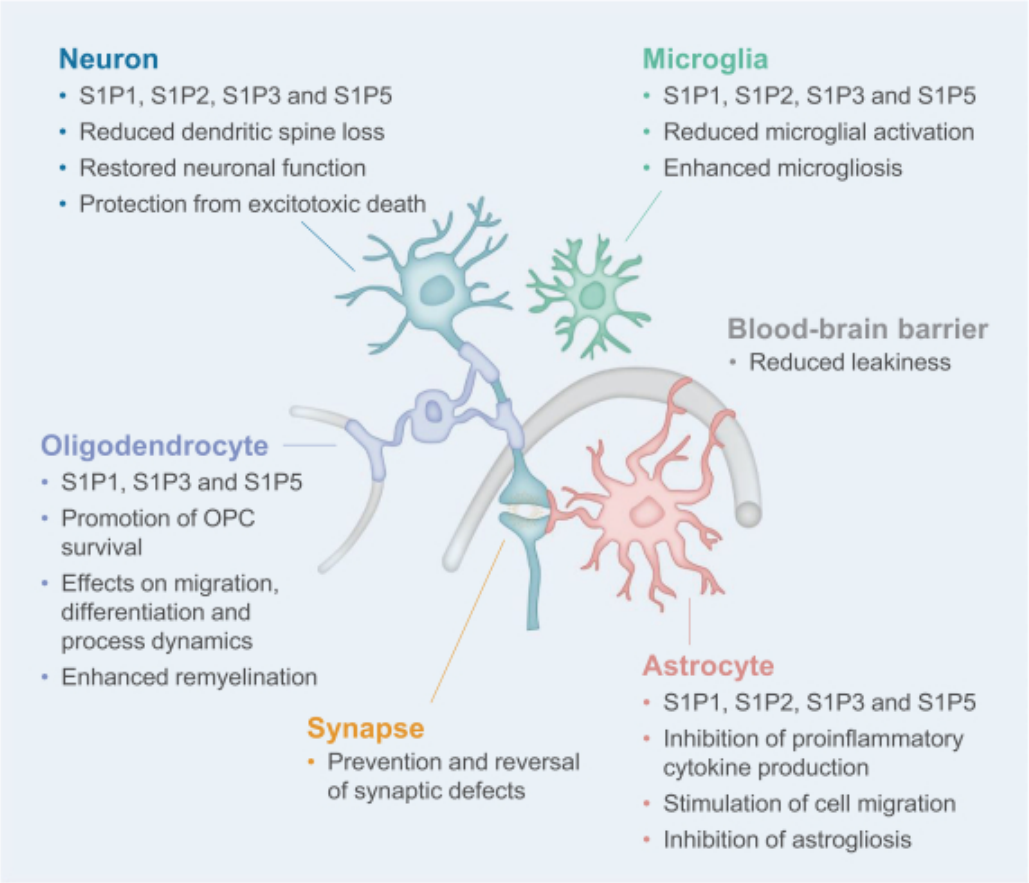
efficacy and safety. LP659 was designed to avoid the negative effects connected to the receptor subtypes 2 and 3, which may be associated with more serious, off-target cardiac, pulmonary, and cancer-related effects. Aberrant S1P receptor modulation has been shown to be involved in a wide range of neurodegenerative 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. In a PK/PD study to assess LP659 effects on lymphocytes in rats, male rats were given a 0.00 (vehicle control), 0.300 or 1.00 mg/kg oral dose of LP659 (n=3 per dosing group). AR252124, the positive control for blood lymphopenia was given as an oral dose (n=4) at 1.00 mg/kg as a positive control for blood lymphopenia. Blood samples were collected at 0, 1, 3, 5, 8, 16, 24, 32, 48 and 72 hours post-dose for blood lymphocyte and plasma drug concentration measurements. LP659 at both doses demonstrated a rapid reduction in lymphocytes which returned to baseline, whereas no return to baseline was observed for AR252124 over the study duration.

A study of CNS distribution of LP659 was conducted in rats. Male rats were dosed orally with LP659 at 1.00 mg/kg for six consecutive days. On Day 6, plasma, brain and cerebrospinal fluid samples were taken at 0, 1, 3, 5, 8, and 24 hours post-last dose (n = 3 per time point). The maximum plasma concentration of LP659 was 551 ng/mL at 3.00 hour post-dose. The maximum brain concentration of LP659 was 947 ng/mL at 8.00 hour post-dose. The mean brain to plasma ratios of LP659 at 0, 1, 3, 5, 8, and 24 hours post-last dose were 2.87, 1.25, 1.17, 1.68, 1.98, and 2.94, respectively. 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 the second half of 2022.

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 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 S1P receptor has been well-validated in slowing the progression of neurodegeneration, notably in multiple sclerosis, for which disease area the FDA has approved three S1P receptor modulators. LP659 was designed to avoid 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 Arena's etrasimod, lorcaserin, nelotanserin, olorinab, or temanogrel products, in any dosage strength or formulation, 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, which we expect to extend until 2036 for LP352, until 2029 for LP659 and 2030 for LP143.

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 of $395,000. 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 February 1, 2021, we held an exclusive, worldwide license to issued and pending patent claims for compositions of matter and certain methods of treatment using LP352 in several jurisdictions, including issued patents in the United States, Europe (17 countries), Japan, Mexico, Australia and Russia, and pending applications in China, Brazil, Canada, India, South Korea, New Zealand, and Israel. The terms of these patents (and applications, if issued) are capable of continuing into 2036, without taking into account any patent term adjustment or extension regimes of any country (e.g., up to five additional years in certain jurisdictions if maximum PTE or SPC applies) or any additional term of exclusivity we might obtain by virtue of later filed patent applications.

As of February 1, 2021, 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 issued patents in the United States, Europe (39 countries), China, Japan, Canada, South Korea, Australia, Mexico, South Africa, New Zealand, Singapore, Israel, and Eurasia, and a pending application in Brazil. The terms of these patents (and applications, if issued) are capable of continuing into 2029, without taking into account any patent term adjustment or extension regimes of any country (e.g., up to five additional years in certain jurisdictions if maximum PTE or SPC applies) or any additional term of exclusivity we might obtain by virtue of later filed patent applications.

As of February 1, 2021, 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 issued patents in China, Japan, Canada, India, Eurasia (9 countries), South Korea, Australia, Mexico, Taiwan, New Zealand, and Israel, and pending applications in the United States, Europe, Venezuela, Brazil, Argentina, South Africa, Bangladesh, Hong Kong, and the GCC. The terms of these patents (and applications, if issued) are capable of continuing into 2030, without taking into account any patent term adjustment or extension regimes of any country (e.g., up to five additional years in certain jurisdictions if maximum PTE or SPC applies) or any additional term of exclusivity we might obtain by virtue of later filed patent applications.

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 royalties, including 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 our company, its affiliates or its sublicensees, subject to standard reductions, 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 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;
- 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 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 participants 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 participants 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 participants. 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 participants 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 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, anesthesiologist assistants and certified nurse-midwives.

Numerous state, federal and foreign laws, self-regulatory schemes, regulations, and standards govern the collection of, disclosure of, use of, access to, transfer of, and confidentiality and security of personal information and health-related information, and could apply now or in the future to our operations or the operations of our partners. For example, In the United States, numerous federal and state laws and regulations, including data breach notification laws, health information privacy laws, and federal and state consumer protection laws and regulations (e.g., Section 5 of the FTC Act), that govern the collection, use, disclosure, and protection of health-related and other personal information could apply to our operations or the operations of our partners. For example, HIPAA, as amended by HITECH and regulations implemented thereunder, imposes requirements relating to the privacy, security and transmission of individually identifiable health information on covered entities," including certain healthcare providers, health plans, and healthcare clearinghouses, and their respective "business associates" that create, receive, maintain or transmit individually identifiable health information for or on behalf of a covered entity, as well as their covered subcontractors. Entities that are found to be in violation of HIPAA as the result of a breach of unsecured protected health information, a complaint about privacy practices or an audit by HHS, may be subject to significant civil, criminal and administrative fines and penalties and/or additional reporting and oversight obligations if required to enter into a resolution agreement and corrective action plan with HHS to settle allegations of HIPAA non-compliance. Further, entities that knowingly obtain, use, or disclose individually identifiable health information maintained by a HIPAA covered entity in a manner that is not authorized or permitted by HIPAA may be subject to criminal penalties.

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. For instance, California recently enacted the California Consumer Privacy Act (CCPA), which went into effect on January 1, 2020. The CCPA 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 information of consumers or households. The CCPA, among other things, creates new data privacy obligations for covered companies and provides new privacy rights to California residents, including the right to access and delete their personal information, opt out of certain personal information sharing, and receive detailed information about how their personal information is used. The CCPA also creates a private right of action with statutory damages for certain data breaches, thereby potentially increasing risks associated with a data breach. Further, 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.

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 the GDPR in relation to our collection, control, processing and other use of personal data of data participants within the European Economic Area (EEA) (i.e. data relating to an identifiable living individual). We process personal data in relation to participants in our clinical trials in the EEA, including the health and medical information of these participants. The GDPR is directly applicable in each EU and EEA Member State, however, it provides that EU and EEA 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 participants (in a concise, intelligible and easily accessible form) how their personal data 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 EEA. 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. More specifically, the Swiss Federal Act on Data Protection, or DPA, applies to the collection and processing of personal data, including health-related information, by companies located in Switzerland, or in certain circumstances, by companies located outside of Switzerland. The DPA has been revised and adopted by Parliament, and the revised version and its revised ordinances are expected to enter into force in 2022. This revised law may result in an increase of costs of compliance, risks of noncompliance and penalties for noncompliance. 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. Switzerland has adopted similar restrictions under the DPA. Although there are legal mechanisms to

allow for the transfer of personal data from the EEA and Switzerland to the United States, they are subject to legal challenges and uncertainty about compliance with EU and Swiss data protection laws remains. There are similar uncertainties around data transfers to and from the United Kingdom following its departure from the EU and the end of the transition period.

Further, the vote in the United Kingdom in favor of exiting the EU, referred to as Brexit, has created uncertainty with regard to data protection regulation in the United Kingdom. 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 United Kingdom, aspects of data protection in the United Kingdom, such as the transfer of data from the EEA to the United Kingdom, remain uncertain. Beginning in 2021, the United Kingdom became a "third country" under the GDPR.

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;
- 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 inseverable 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, if any, 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 March 31, 2021, 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 February 1, 2021, we employed six 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 March 7, 2021.

Name	Age	Position
Executive Officers:		
Kevin R. Lind	44	President, Chief Executive Officer and Director
Brandi L. Roberts	47	Chief Financial Officer
Philip Perera, M.D.	68	Chief Medical Officer
Non-Employee Directors		
Vincent E. Aurentz	53	Director
Corinne Le Goff, Pharm.D.[1][3]	55	Director
Casey C. Lynch[2][3]	47	Director
Phillip M. Schneider[1][3]	64	Director
Paul J. Sekhri[1][2]	62	Chairman

(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 director since our inception in January 2020. Mr. Lind served as our Chief Financial Officer from our inception in January 2020 to January 2021. 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 and Chief Executive Officer and previously as our Chief Financial Officer, as well as his extensive executive experience at Arena, qualify him to serve on our board of directors.

Brandi L. Roberts has served as our Chief Financial Officer since January 2021. Prior to joining us, Ms. Roberts served as Chief Financial Officer for Lineage Cell Therapeutics, Inc., a clinical-stage biotechnology company, from January 2019 to January 2021. From August 2017 to January 2019, Ms. Roberts served as Chief Financial Officer at REVA Medical, Inc. (Reva), a medical device company. Subsequently, Reva filed a prepackaged voluntary Chapter 11 bankruptcy petition on January 14, 2020 and emerged from bankruptcy protection in United States effective February 26, 2020. Ms. Roberts previously served as Chief Financial Officer at Mast Therapeutics, Inc., a publicly traded U.S.-based biopharmaceutical company, from January 2013 to April 2017, having served as its Senior Vice President, Finance from March 2011 to January 2013. Previously, Ms. Roberts held senior positions at Alphatec Spine, Inc., Artes Medical, Inc., Stratagene Corporation and Pfizer, Inc. Ms. Roberts currently serves as Chair of the Southern California Chapter of the Association of Bioscience Financial Officers and has served on the Board of Temple Therapeutics BV since November 2019. Ms. Roberts brings more than 25 years of public accounting and finance experience, including 22 years at publicly traded pharmaceutical, medical technology and life science companies, to her position. Ms. Roberts is a certified public accountant with the State of California and received her B.S. degree in business administration from the University of Arizona and her M.B.A. from the University of San Diego.

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 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.

Corinne Le Goff, Pharm.D. has served as a member of our board of directors since March 2021. Dr. Le Goff has served as Chief Commercial Officer of Moderna, Inc., a publicly traded clinical stage biotech and pharmaceutical company, since January 2021. Dr. Le Goff previously served as Senior Vice President and General Manager of the U.S. Business Organization at Amgen, Inc., a public biotechnology company, from March 2019 to January 2021. During her tenure at Amgen, she also served as Senior Vice President of Global Product Strategy from June 2018 to March 2019, and Senior Vice President of the Europe Region from June 2015 to May 2018. Dr. Le Goff worked in the policy community and advocated for innovative, high-quality and affordable healthcare. Dr. Le Goff held various positions within the Roche Group, a publicly traded Swiss multinational healthcare company, including President of Roche's French affiliate from May 2012 to May 2015. Dr. Le Goff has served on the board of directors of the Pacific Council on International Policy since October 2019. Dr. Le Goff also served on the board of directors of CFAO, a trading company, from October 2014 until October 2020, where she served as a member of the Nomination and Compensation Committee, the Sustainable Development Committee and the Audit Committee. Dr. Le Goff received a Pharm. D. from the University Paris V and an M.B.A. in Marketing from La Sorbonne University, France. We believe Dr. Le Goff's substantial experience in managing biopharmaceutical companies qualifies her to serve on our board of directors.

Casey C. Lynch has served as a member of our board of directors since February 2021. Ms. Lynch previously co-founded and has served as President and Chief Executive Officer and a member of the board of directors of Cortexyme, Inc., a public biotechnology company, since July 2014, and as Chairman of Cortexyme's board of directors since November 2018. She has been a member of the board of directors of the California Life Science Association, a trade association representing California's life science industry, since August 2019. Prior to co-founding Cortexyme, Ms. Lynch co-founded various companies and organizations in the biotechnology industry including Aspira Biosystems, Inc. and NeuroInsights, LLC. She served as Aspira's co-founder, President, Chief Executive Officer and Chairman from 1999 to 2004 and she co-founded NeuroInsights and served as its Managing Director from 2004 to 2015. Ms. Lynch also co-founded Neurotechnology Industry Organization, a non-profit trade association, and served as a board member from March 2005 to September 2018. Ms. Lynch holds a B.S. in Neuroscience from the University of California, Los Angeles, and an M.S. in Neuroscience from the University of California, San Francisco. We believe that Ms. Lynch's operational and historical expertise, as well as her extensive professional and educational experience in the biotechnology industry qualify her to serve on our board of directors.

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, serving as Senior Vice President and Chief Financial Officer from 1997 to 2003. 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's extensive experience in finance and accounting and his experience in the biopharmaceutical industry qualify him to serve on our board of directors.

Paul J. Sekhri has served as a member of our board of directors since December 2020 and as chairman of our board of directors since February 2021. 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 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. Five of our current directors were appointed to serve as a member of our board of directors consistent with the provisions of a voting agreement dated October 27, 2020, by and among us and certain of our stockholders. Mr. Aurentz and Ms. Lynch were designated by Arena Pharmaceuticals, Inc. to serve on our board of directors. Mr. Lind was designated to serve on our board of directors as the serving Chief Executive Officer. Mr. Schneider and Mr. Sekhri were appointed to serve on our board of directors as independent directors who are not affiliates 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 Mr. Lind and Dr. Le Goff, and their terms will expire at the annual meeting of stockholders to be held in 2022;
- the Class II directors will be Ms. Lynch and Mr. Aurentz, and their terms will expire at the annual meeting of stockholders to be held in 2023; and
- the Class III directors will be Mr. Sekhri and Mr. Schneider, 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 Ms. Lynch, Dr. Le Goff, Mr. Sekhri, and Mr. Schneider 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 closing 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 Mr. Schneider, Ms. Lynch and Dr. Le Goff, 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 Mr. Schneider, 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 over financial reporting and financial-statement audits, as well as the quality and integrity of our financial statements and reports 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 and discussing with management and the independent registered public accounting firm, as appropriate, earnings press releases, and press releases containing information relating to material financial developments and earnings guidance provided to analysts and ratings agencies;
- 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 Mr. Sekhri, Mr. Schneider and Dr. Le Goff. The chair of our compensation committee is Mr. Sekhri. 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 recommending to our board of directors the compensation of our chief executive officer, and reviewing and approving the compensation for our 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;
- 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; 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 Ms. Lynch and Mr. Sekhri. The chair of our nominating and corporate governance committee is Ms. Lynch. 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;

- reviewing, evaluating and recommending to our board of directors succession plans for our executive officers; 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 and Chief Executive 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 25,461 shares of common stock. The option grants each have an exercise price of $3.62 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.

Our board of directors adopted a non-employee director compensation policy in February 2021 that became effective upon the execution and delivery of the underwriting agreement related to this offering and will be applicable to all of our non-employee directors. This compensation policy provides that eligible non-employee directors, as determined by our board of directors, will receive the following compensation for service on our board of directors:

- an annual cash retainer of $40,000 for all non-employee directors;
- an additional annual cash retainer of $30,000 for the chair of our board of directors;
- an additional annual cash retainer of $10,000, $7,500 and $5,000 for service as a member of the audit committee, compensation committee and the nominating and corporate governance committee, respectively;

- an additional annual cash retainer of $10,000, $7,500 and $5,000 for service as chair of the audit committee, compensation committee and the nominating and corporate governance committee, respectively;
- an initial option grant to purchase 12,367 shares of our common stock on the date of each such non-employee director's appointment to our board of directors; and
- an annual option grant to purchase 12,367 shares of our common stock on the date of each of our annual stockholder meetings.

Non-employee directors who join our board of directors within 30 days prior to the effectiveness of this registration statement will receive an initial option grant and a prorated annual option grant in connection with this offering. The initial option grants will vest over a three year period and the annual option grants will vest over a one year period, subject to the director's continued service and acceleration in the full upon change in control or such director's death or disability.

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 most highly compensated executive officer, 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.

There were no other executive officers serving our company at December 31, 2020. In January 2021, we hired Ms. Roberts as our Chief Financial Officer. Although Ms. Roberts commenced services with us in 2021, we have included information in the following narrative regarding her compensation.

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 ($)[6]	Option Awards ($)[6]	Non-Equity Incentive Plan Compensation ($)	All Other Compensation ($)[7]	Total ($)
Amit D. Munshi *Former Chief Executive Officer*[1]	—	—	—	—	—	—	—
Kevin R. Lind *President and Chief Executive Officer*[2]	332,090[4]	165,506	1,087,164	692,608		9,323	2,286,691
Philip Perera, M.D. *Chief Medical Officer*[3]	103,683[5]	11,205[8]	—	482,982	—	—	597,870

(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 to us.

(2) Mr. Lind has served as our President and Chief Executive Officer since March 2020 and previously served as our Chief Financial Officer from January 2020 to January 2021. Mr. Lind also previously served as Arena's Executive Vice President and Chief Financial Officer until March 2020 and remained an employee of Arena until October 2020. Since March 2020, Mr. Lind has spent nearly 100% of his working time at our company. Mr. Lind did not receive any salary or other compensation for his service to us prior to March 2020 when he resigned as Arena's Executive Vice President and Chief Financial Officer. The compensation in the table above includes compensation for Mr. Lind's services provided solely to our company during 2020, including amounts paid by Arena for such services. Mr. Lind and Arena entered into a separation agreement in October 2020 in connection with his separation from Arena, which is summarized in Note 10 to our financial statements included elsewhere in this prospectus. The compensation in the table above does not include the amounts recorded on our financial statements for the fiscal year ended December 31, 2020 related to this agreement.

(3) Dr. Perera has served as our Chief Medical Officer since November 2020. Dr. Perera previously provided services to us as a Pharmaceutical Clinical Development Consultant from May 2020 to October 2020.

(4) The amounts disclosed represent (i) $257,766 paid by Arena for services rendered solely to us from March 2020 to October 2020 and (ii) $74,324 paid by us to Mr. Lind from October 2020 to December 2020.

(5) The amounts disclosed represent (i) $63,875 paid by us for services rendered to us as a Pharmaceutical Clinical Development Consultant from May 2020 to October 2020 and (ii) $39,808 paid by us for services as our Chief Medical Officer from November 2020 to December 2020.

(6) In accordance with SEC rules, these columns reflect the aggregate grant date fair value of the restricted stock awards and stock option awards granted during 2020. This amount has been computed in accordance with Financial Accounting Standards Board (FASB), Accounting Standards Codification (ASC) Topic 718. Assumptions used in the calculation of this amount are described in Note 2 to our financial statements included elsewhere in this prospectus. This amount does not reflect the actual economic value that will be realized by Mr. Lind or Dr. Perera upon the vesting of the stock awards or stock options, the exercise of the stock options, or the sale of the common stock underlying such awards.
(7) The amounts reported in this column represent 401(k) matching contributions group-term life insurance premiums.
(8) In connection with his commencement of employment, Dr. Perera received a one-time sign on bonus, which was paid in 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 annual base salaries for our named executive officers were as follows: (i) for Mr. Lind, $432,847 for services rendered to us from March 2020 through October 2020 and $440,000 for services to us commencing in October 2020, and (ii) for Dr. Perera, $345,000 for his services to us commencing in November 2020. Dr. Perera also received $63,875 for his services to us as a Pharmaceutical Clinical Development Consultant from May 2020 to October 2020. Mr. Munshi did not receive a base salary for his service as our Chief Executive Officer in 2020.

In February 2021, our board of directors approved increasing the base salaries of Mr. Lind, Dr. Perera, and Ms. Roberts. Effective upon effectiveness of the registration statement of which this prospectus forms a part, the annual base salaries for Mr. Lind, Dr. Perera and Ms. Roberts will be $550,000, $425,000 and $400,000, respectively.

Performance Bonus

For 2020, Mr. Lind was eligible for a performance bonus for services to us, in a target amount equal to $165,506, which reflects (i) 50% of Mr. Lind's base salary for services rendered to us from March 2020 through October 2020 while he remained an Arena employee (determined pursuant to goals under the Arena 2018 LTIP for 2020) and (ii) a pro-rated annual target annual bonus of $180,000 for services rendered to us for the remainder of 2020 based on our corporate objectives. In March 2021, Mr. Lind was awarded a performance bonus of $165,506 for his services rendered to us in 2020.

In February 2021, our board of directors approved increasing target amounts of the performance bonuses of Mr. Lind, Dr. Perera, and Ms. Roberts. Effective upon effectiveness of the registration statement of which this prospectus forms a part, the bonus targets amount for Mr. Lind, Dr. Perera and Ms. Roberts will be 60%, 40% and 40%, of their base salaries respectively.

Equity Compensation

Prior to this offering, we granted stock options to each of our named executive officers pursuant to our 2020 Plan, the terms of which are described below under "Equity Incentive Plans—2020 Equity Incentive Plan."

In October 2020, we granted Mr. Lind an option to purchase 348,450 shares of our common stock at an exercise price of $3.12 per share that vests as follows: one-twenty-fourth of the total shares vest monthly commencing on October 27, 2022, subject to Mr. Lind's continued service to us. The option includes an early exercise feature.

In October 2020, we granted Mr. Lind 348,450 shares of our restricted common stock at a fair market value of $3.12 per share that vest as follows: one-half of the shares vest on October 27, 2021 and one-twenty-fourth of the shares vest monthly commencing on October 27, 2021, subject to Mr. Lind's continued service to us.

In November 2020, we granted Dr. Perera an option to purchase 209,070 shares of our common stock at an exercise price of $3.62 per share that vests as follows: one-fourth of the total shares vest on October 27, 2021 and one-forty-eighth of the total shares shall vest monthly commencing on October 27, 2021, subject to Dr. Perera's continued service to us.

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.

	Option Awards				Stock Awards	
Name	Number of Securities Underlying Unexercised Options Exercisable	Number of Securities Underlying Unexercised Options Unexercisable	Option Exercise Price[4]	Option Expiration Date	Number of Shares of Stock that Have Not Vested	Market Value of Shares that Have Not Vested
Amit D. Munshi[1]	—	—	—	—	—	—
Kevin R. Lind	348,450[2]	—	$ 3.12	10/27/2030	348,450[5]	1,087,164[6]
Philip Perera, M.D.	—	209,070[3]	$ 3.62	11/22/2030	—	—

(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) The amounts reported in this column represent an option to purchase 348,450 shares of our common stock by us to Mr. Lind in October 2020, which is early exercisable. One-twenty-fourth of the total shares vest monthly commencing on October 27, 2022, subject to Mr. Lind's continued service to us. The option includes an early exercise feature.

(3) The amounts reported in this column represent an option to purchase 209,070 shares of our common stock by us to Dr. Perera in November 2020. One-fourth of the total shares shall vest on October 27, 2020 and one-forty-eighth of the total shares shall vest monthly commencing on October 27, 2021, subject to Dr. Perera's continued service to us.

(4) All of the option awards were granted with a per share exercise price equal to the fair market value of one share of our common stock on the date of grant, as determined in good faith by our board of directors.

(5) The amounts reported in this column represent 348,450 shares of restricted common stock granted by us to Mr. Lind in October 2020. One-half of the shares vest on October 27, 2021 and one-twenty-fourth of the shares vest monthly commencing on October 27, 2021, subject to Mr. Lind's continued service to us.

(6) This amount reflects the fair market value of our common stock of $3.12 per share as of October 27, 2020 (the determination of the fair market value by our board of directors as of the most proximate date) multiplied by the amount shown in the column for the number of shares that have not vested.

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. Mr. Lind participated in Arena's employee 401(k) salary deferral plan during 2020 during the time he served as an employee of Arena which included a matching contribution by our company until October 26, 2020. 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.

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

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 and Ms. Roberts is employed "at will".

Mr. Lind. We entered into an offer letter with Mr. Lind in October 2020, which was amended and restated effective as of the date of the underwriting agreement for this offering, and which governs the current terms of his employment with us. Pursuant to the agreement, Mr. Lind is entitled to an annual base salary of $550,000, a target annual discretionary bonus with a target amount of 60% of his annual base salary, as determined by our board of directors. 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 and collectively, an Involuntary Termination), including (i) continued payment of Mr. Lind's base salary for eighteen months, (ii) payment of a pro-rata portion of his annual bonus for the year in which such Involuntary Termination occurs, based on actual performance results for such year as determined by the board of directors or the compensation committee of the board of directors (the Pro-Rata Bonus), (iii) payment of premiums for continued group health benefits for up to twelve months, and (iv) twelve months of accelerated vesting of all outstanding equity awards that are subject to time-based vesting, measured from the date of termination. If such termination or resignation occurs within three months preceding or 18 months immediately following a change in control (as defined in our 2021 Plan), then Mr. Lind would instead be eligible to receive (i) an amount equal to 150% of his base salary plus 150% of his target annual bonus for the year such Involuntary Termination occurs, (ii) payment of his Pro-Rata Bonus for the year in which the Involuntary Termination occurs, and (iii) payment of premiums for continued group health benefits for up to eighteen months, and the vesting and exercisability of all outstanding time-based stock options and other time-based equity awards covering our common stock will accelerate in full effective as of the later of (x) Mr. Lind's Involuntary Termination date or (y) the effective date of a the change in control.

For the purposes of Mr. Lind's offer letter, "cause" for termination means (A) Mr. Lind has been convicted of, or plead guilty or no contendere to, a felony or crime involving fraud, dishonesty or moral turpitude; (B) Mr. Lind has participated in any fraud against us; (C) Mr. Lind has materially and intentionally damaged company property; (D) Mr. Lind has willfully engaged in misconduct or has violated company policies in a manner that has been materially harmful to company; (E) Mr. Lind materially breached his offer letter, confidentiality agreement or any other agreement with us; or (F) 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 base salary; (B) any material diminution in the authority, duty or responsibilities of Mr. Lind; or (C) an office relocation farther than 50 miles from our principal executive offices.

Mr. Lind and Arena entered into a separation agreement in October 2020 in connection with his separation from Arena, which is summarized in Note 10 to our financial statements included elsewhere in this prospectus. The separation agreement provided for certain treatment of outstanding equity awards covering Arena common stock that were granted to Mr. Lind by Arena prior to 2020 in respect of Mr. Lind's services to Arena and for Mr. Lind's continued eligibility to earn a performance bonus for 2020 with respect to the period of time Mr. Lind remained an employee of Arena in 2020.

Dr. Perera. We entered into an offer letter with Dr. Perera in November 2020, which was amended and restated effective as of the date of the underwriting agreement for this offering, and which governs the current terms of his employment with us. Pursuant to the agreement, Dr. Perera is entitled to an annual base salary of $425,000 and a target annual discretionary bonus, beginning with calendar year 2021, equal to 40% of his annual base salary. Dr. Perera is also entitled to certain severance benefits upon a termination of his employment without "cause" or resignation for "good reason" (each as defined below and collectively, an Involuntary Termination), including (i) continued payment of Dr. Perera's base salary for twelve months, (ii) payment of a pro-rata portion of his annual bonus for the year in which such Involuntary Termination occurs, based on actual performance results for such year as determined by the board of directors or the compensation committee of the board of directors (the Pro-Rata Bonus), (iii) six months of accelerated vesting of all outstanding equity awards that are subject to time-based vesting, measured from the date of termination and (iv) payment of premiums for continued group health benefits for up to twelve months. If such termination or resignation occurs within three months preceding or 18 months immediately following a change in control (as defined in our 2021 Plan), then Dr. Perera would instead be eligible to receive (i) an amount equal to 100% of his base salary plus 100% of his target annual bonus for the year such Involuntary Termination occurs, (ii) payment of his Pro-Rata Bonus for the year in which the Involuntary Termination occurs, and (iii) payment of premiums for continued group health benefits for up to twelve months, and the vesting and exercisability of all outstanding time-based stock options and other time-based equity awards covering our common stock will accelerate in full effective as of the later of (x) Dr. Perera's Involuntary Termination date or (y) the effective date of a the change in control. Prior to his employment with us, Dr. Perera provided consulting services to us from May 2020 to October 2020 pursuant to a consulting agreement that provided for consulting fees of $300 per hour (for services provided in May) and $10,000 per month (for services provided from June through October).

For the purposes of Dr. Perera's offer letter, "cause" for termination means (A) Dr. Perera has been convicted of, or plead guilty or no contendere to, a felony or crime involving fraud, dishonesty or moral turpitude; (B) Dr. Perera has participated in any fraud against us; (C) Dr. Perera has materially and intentionally damaged company property; (D) Dr. Perera has willfully engaged in misconduct or has violated company policies in a manner that has been materially harmful to company; (E) Dr. Perera materially breached his offer letter, confidentiality agreement or any other agreement with us; or (F) Dr. Perera has participated in conduct that we, in good faith and after reasonable determination, have decided demonstrates that he is grossly unfit to serve.

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

Ms. Roberts. We entered into an offer letter with Ms. Roberts in January 2021, which was amended and restated effective as of the date of the underwriting agreement for this offering, and which governs the current terms of her employment with us. Pursuant to the agreement, Ms. Roberts is entitled to an annual base salary of $400,000 and a target annual discretionary bonus, beginning with calendar year 2021, equal to 40% of her annual base salary. We also paid Ms. Roberts a one-time lump sum cash sign-on bonus of $30,000. Ms. Roberts is also entitled to certain severance benefits upon a termination of her employment without "cause" or resignation for "good reason" (each as defined below and collectively, an Involuntary Termination), including (i) continued payment of Ms. Roberts' base salary for twelve months, (ii) payment of a pro-rata portion of her annual bonus for the year in which such Involuntary Termination occurs, based on actual performance results for such year as determined by the board of directors or the compensation committee of the board of directors (the Pro-Rata Bonus), (iii) six months of accelerated vesting of all outstanding equity awards that are subject to time-based vesting, measured from the date of termination and (iv) payment of premiums for continued group health benefits up to twelve months. If such termination or resignation occurs within three months preceding or 18 months immediately following a change in control (as defined in our 2021 Plan), then Ms. Roberts would instead be eligible to receive (i) an amount equal to 100% of her base salary plus 100% of her target annual bonus for the year such Involuntary Termination occurs, (ii) payment of her Pro-Rata Bonus for the year in which the Involuntary Termination occurs, and (iii) payment of premiums for continued group health benefits for up to

twelve months, and the vesting and exercisability of all outstanding time-based stock options and other time-based equity awards covering our common stock will accelerate in full effective as of the later of (x) Ms. Roberts' Involuntary Termination date or (y) the effective date of a the change in control.

For the purposes of Ms. Roberts' offer letter, "cause" for termination means (A) Ms. Roberts has been convicted of, or plead guilty or no contendere to, a felony or crime involving fraud, dishonesty or moral turpitude; (B) Ms. Roberts has participated in any fraud against us; (C) Ms. Roberts has materially and intentionally damaged company property; (D) Ms. Roberts has willfully engaged in misconduct or has violated company policies in a manner that has been materially harmful to company; (E) Ms. Roberts materially breached her offer letter, confidentiality agreement or any other agreement with us; or (F) Ms. Roberts has participated in conduct that we, in good faith and after reasonable determination, have decided demonstrates that she is grossly unfit to serve.

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

Equity Incentive Plans

Prior to our Series A preferred stock financing in October 2020, we did not have our own equity incentive plan. One of our employees, Mr. Lind, was granted options under the Arena 2017 LTIP, which was granted at the time he served as Arena's Executive Vice President and Chief Financial Officer and represented compensation for his services to Arena. 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.

Performance Bonus Plan

Our board of directors adopted a formal executive bonus plan (Performance Bonus Plan) in February 2021. The purpose of the Performance Bonus Plan is to create a direct relationship between key business performance measurements and individual bonus amounts. The Performance Bonus Plan will provide for bonus payments to each executive officer conditioned upon the achievement of certain performance goals established by the compensation committee, which may differ for each executive officer. Our compensation committee will establish such performance goals based on one or more established performance criteria relating to financial, operational, workforce, or partner performance.

2021 Equity Incentive Plan

Our board of directors adopted our 2021 Plan in February 2021 and our stockholders approved our 2021 Plan in March 2021. Our 2021 Plan is a successor to and continuation of our 2020 Plan (as described below). Our 2021 Plan became 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 2,834,232 shares of our common stock, which is the sum of (A) 1,766,699 new shares (which includes the shares remaining available for grant under our 2020 Plan at the time the 2021 Plan becomes effective), plus (B) 1,067,533 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 through January 1, 2031, in an amount equal to (i) 5% 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 (determined on an as-converted to voting common stock basis, without regard to any limitations on the conversion of the non-voting common stock), 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 8,833,495 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 that commences after the 2021 Plan becomes effective, including awards granted and cash fees paid by us to such non-employee director, will not exceed $750,000 in total value; provided that such amount will increase to $1,500,000 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 1,147,746 shares remaining available for the future grant of stock awards under our 2020 Plan. As of December 31, 2020, there were six outstanding stock options covering a total of 873,264 shares of our common stock, with a weighted-average exercise price of $3.42 per share, and one

restricted stock award covering 348,450 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 became 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 2,369,460 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 7,108,380 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 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 February 2021 and our stockholders approved our ESPP in March 2021. The ESPP became 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 353,339 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 through January 1, 2031, by the lesser of (i) 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 (determining on an as-converted to voting common stock basis, without regard to any limitations on the conversion of the non-voting common stock); and (ii) such number of shares of common stock that would cause the aggregate number of shares of common stock then reserved for issuance under the ESPP to equal 1,060,017 shares; provided that before the date of any such increase, our board of directors may determine that such increase will be for a lesser amount of shares. 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.

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 or 1% of our total assets as of December 31, 2020, 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 33.4% of our outstanding shares of common stock (on an as-converted basis). Immediately following the closing of this offering, Arena will own 23.5% of our outstanding shares of common stock and non-voting common stock (or approximately 22.5% of our common stock and non-voting 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 in all countries and territories of the world (Territory), owed or otherwise payable to 356 Royalty by Eisai, pursuant to a Transaction Agreement dated December 28, 2016, as amended (Transaction Agreement), by and among 356 Royalty and Eisai, for an upfront payment of approximately $121,000. Under the Transaction Agreement, the royalty rates, range from 9.5% on annual global net sales less than or equal to $175 million, 13.5% on annual global net sales greater than $175.0 million but less than or equal to $500.0 million and 18.5% on annual global net sales greater than $500 million. In addition, we purchased the right to receive a payment of $25.0 million, which will be payable upon the achievement of a sales milestone.

The Transaction Agreement will remain in effect until terminated by 356 Royalty or Eisai with respect to all countries in the Territory. Pursuant to the Royalty Purchase Agreement, Arena and 356 Royalty shall not terminate the Transaction Agreement without our prior written consent unless any such action would reasonably be expected to not have a significant adverse effect on the milestones and royalties payable under the Transaction Agreement.

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).

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) Chandra P. Leo, a former 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, a member of our board of directors, is 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.

Exchange Agreement

In March 2021, we entered into an exchange agreement with certain holders of our Series A preferred stock, including entities affiliated with Zone II Healthcare Holdings, LLC, Cormorant Private Healthcare Fund III, LP, and HBM Healthcare Investments (Cayman) Ltd. (Exchange Agreement), pursuant to which we agreed to issue, immediately prior to the closing of this offering, newly issued shares of our non-voting common stock in exchange for outstanding shares of our Series A preferred stock, in an amount such that shares held by such holder, including any shares purchased in this offering and shares of voting common stock issued upon conversion of Series A preferred stock, will result in such holder beneficially owning not more than 9.99% of our common stock as of immediately following the closing of this offering.

The shares of Series A preferred stock exchanged pursuant to the Exchange Agreement will cease to be issued and outstanding. The remaining outstanding shares of our Series A preferred stock will automatically convert into shares of our common stock on a 1.38-for-1 basis upon 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

We have adopted 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 or an affiliate 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 or an affiliate 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 that are comparable to the terms available to or from, as the case may be, unrelated third parties 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 December 31, 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 current directors;
- each our of named executive officers; and
- all of our named 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 March 1, 2021, which is 60 days after December 31, 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 11,916,990 shares of our common stock outstanding as of December 31, 2020, and assumes the automatic conversion of all 5,600,000 outstanding shares of our Series A preferred stock into 7,728,000 shares of our common stock upon the closing of this offering and does not give effect to the Exchange. Applicable percentage ownership after the offering is based on 13,287,590 shares of common stock outstanding immediately after the closing of this offering, and assumes (i) the issuance of 3,629,400 shares of non-voting common stock in exchange for 2,630,000 shares of Series A preferred stock pursuant to the Exchange Agreement, (ii) the automatic conversion of 2,970,000 outstanding shares of our Series A preferred stock into 4,098,600 shares of our common stock upon the closing of this offering, and (iii) the sale of 5,000,000 shares of common stock in this offering.

The percentage ownership information before and after the offering assumes no purchases of any shares of our common stock in this offering by any of the beneficial owners identified in the table below.

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:			
Arena Pharmaceuticals, Inc.(1)	3,978,540	33.4%	29.9%
Entities affiliated with Cormorant Asset Management, LP(2)	1,656,000	13.9	3.9
Entities affiliated with T. Rowe Price Associates, Inc.(3)	1,656,000	13.9	12.5
HBM Healthcare Investments (Cayman) Ltd.(4)	1,380,000	11.6	4.9
Zone II Healthcare Holdings, LLC(5)	2,070,000	17.4	2.3
Named Executive Officers and Directors:			
Amit D. Munshi	—	*	*
Kevin R. Lind(6)	696,900	5.8	5.2
Philip Perera, M.D.	—	*	*
Vincent E. Aurentz	—	*	*
Corinne Le Goff, Pharm.D.	—	*	*
Casey C. Lynch	—	*	*
Phillip M. Schneider(7)	2,121	*	*
Paul J. Sekhri(8)	2,121	*	*
All current executive officers and directors as a group (8 persons)(9)	701,142	5.8%	5.2%

* Represents beneficial ownership of less than 1%.

(1) Consists of (i) 3,840,540 shares of common stock held by Arena and (ii) 138,000 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, a member of our board of directors, are employed at Arena Pharmaceuticals, Inc.

(2) Consists of (i) 414,207 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) 96,410 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) 6,883 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. Percentage ownership after the offering assumes the issuance of an aggregate of 1,138,500 shares of non-voting common stock in exchange for an aggregate of 825,000 shares of Series A preferred stock held by Cormorant Fund III, Cormorant Master Fund and CRMA.

(3) Consists of (i) 865,094 shares of common stock issuable upon conversion of our Series A preferred stock held by T. Rowe New Horizons Fund Inc., (ii) 573,587 shares of common stock issuable upon conversion of our Series A preferred stock held by T. Rowe Price Health Sciences Fund, Inc., (iii) 108,846 shares of common stock issuable upon conversion of our Series A preferred stock held by T. Rowe Price New Horizons Trust, (iv) 40,282 shares of common stock issuable upon conversion of our Series A preferred stock held by TD Mutual Funds – TD Health Sciences Fund, (v) 32,938 shares of common stock issuable upon conversion of our Series A preferred stock held by VALIC Company I—Health Sciences Fund, (vi) 25,823 shares of common stock issuable upon conversion of our Series A preferred stock held by T. Rowe Price Health Sciences Portfolio, (vii) 5,957 shares of common stock issuable upon conversion of our Series A preferred stock held by T. Rowe Price U.S. Equities Trust and (viii) 3,472 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 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 648,600 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. 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. Percentage ownership after the offering assumes the issuance of an aggregate of 731,400 shares of non-voting common stock in exchange for an aggregate of 530,000 shares of Series A preferred stock.

(5) Consists of 310,500 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 (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. Percentage ownership after the offering assumes the issuance of an aggregate of 1,759,500 shares of non-voting common stock in exchange for an aggregate of 1,275,000 shares of Series A preferred stock.

(6) Consists of (i) 348,450 shares of common stock held by Mr. Lind and (ii) 348,450 shares of common stock subject to options held by Mr. Lind that are exercisable within 60 days of December 31, 2020.

(7) Consists of 2,121 shares of common stock subject to options held by Mr. Schneider that are exercisable within 60 days of December 31, 2020.

(8) Consists of 2,121 shares of common stock subject to options held by Mr. Sekhri that are exercisable within 60 days of December 31, 2020.

(9) Consists of the shares described in notes 6, 7 and 8 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 upon the closing of this offering. 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, non-voting 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 300,000,000 shares of common stock, par value $0.0001 per share, 10,000,000 shares of non-voting common stock, par value $0.0001 per share, and 10,000,000 shares of preferred stock, par value $0.0001 per share. All of our authorized shares of preferred stock will be undesignated.

Pursuant to the Exchange Agreement, immediately prior to the closing of this offering, we will issue shares of our non-voting common stock in exchange for outstanding shares of our Series A preferred stock, in an amount such that shares held by each holder that is party to the Exchange Agreement, including any shares purchased in this offering and shares of voting common stock issued upon conversion of Series A preferred stock, will result in such holder beneficially owning not more than 9.99% of our common stock as of immediately following the closing of this offering. The shares of Series A preferred stock exchanged pursuant to the Exchange Agreement will cease to be issued and outstanding. The remaining outstanding shares of our Series A preferred stock will automatically convert into shares of our common stock on a 1.38-for-1 basis upon the closing of this offering.

As of December 31, 2020, assuming (i) the issuance of 3,629,400 shares of non-voting common stock in exchange for 2,630,000 shares of Series A preferred stock pursuant to the Exchange Agreement and (ii) the automatic conversion of 2,970,000 outstanding shares of our Series A preferred stock into 4,098,600 shares of our common stock upon the closing of this offering, there were 11,916,990 shares of common stock and non-voting common stock outstanding and held of record by 18 stockholders.

Common Stock and Non-Voting Common Stock

Holders of our common stock and our non-voting common stock have identical rights, provided that, (i) except as otherwise expressly provided in our amended and restated certificate of incorporation or as required by applicable law, on any matter that is submitted to a vote by our stockholders, holders of our common stock are entitled to one vote per share of common stock, and holders of our non-voting common stock are not entitled to any votes per share of non-voting common stock, including for the election of directors, and (ii) holders of our common stock have no conversion rights, while holders of our non-voting common stock shall have the right to convert each share of our non-voting common stock into one share of common stock at such holder's election, provided that as a result of such conversion, such holder, together with its affiliates and any members of a Schedule 13(d) group with such holder, would not beneficially own in excess of 9.99% of our common stock immediately prior to and following such conversion, unless otherwise as expressly provided for in our amended and restated certificate of incorporation. However, this ownership limitation may be increased or decreased to any other percentage (not to exceed 19.99%) designated by such holder of non-voting common stock upon 61 days' notice to us.

Voting Rights

The common stock is entitled to one vote per share on any matter that is submitted to a vote of our stockholders, and the non-voting common stock is not entitled to any votes per share. 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 and non-voting 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 and non-voting 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 and non-voting 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 and non-voting 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 and non-voting common stock to be issued under this offering will be fully paid and non-assessable.

Preferred Stock

As of December 31, 2020, there were 5,600,000 shares of our Series A preferred stock outstanding, held of record by 17 holders. Each outstanding share of our Series A preferred stock is entitled to convert into 1.38 shares of our common stock.

Pursuant to the Exchange Agreement, immediately prior to the closing of this offering, we will issue shares of our non-voting common stock in exchange for outstanding shares of our Series A preferred stock, in an amount such that shares held by each holder that is party to the Exchange Agreement, including any shares purchased in this offering and shares of voting common stock issued upon conversion of Series A preferred stock, will result in such holder beneficially owning not more than 9.99% of our common stock as of immediately following the closing of this offering. The shares of Series A preferred stock exchanged pursuant to the Exchange Agreement will cease to be issued and outstanding. The remaining outstanding shares of our Series A preferred stock will automatically convert into shares of our common stock on a 1.38-for-1 basis upon the closing of this offering.

In addition, upon 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 10,000,000 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 and non-voting common stock, as applicable. 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 non-voting common stock and may adversely affect the market price of the common stock and non-voting common stock and the voting and other rights of the holders of common stock and non-voting 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 7,728,000 shares of our common stock (including common stock issuable upon conversion of our non-voting 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 7,728,000 shares of common stock (including common stock issuable upon conversion of our non-voting 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 upon 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 state, statutory and 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 upon 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 or causes of action arising under the Securities Act, including all causes of action asserted against any defendant to such complaint. For the avoidance of doubt, this provision is intended to benefit and may be enforced by us, our officers and directors, the underwriters to any offering giving rise to such complaint, and any other professional entity whose profession gives authority to a statement made by that person or entity and who has prepared or certified any part of the documents underlying the offering.

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

Our common stock has been 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 American Stock Transfer & Trust Company. The transfer agent and registrar’s address is 6201 15th Avenue, Brooklyn, New York 11219.

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 or upon the conversion of our non-voting common stock, 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 December 31, 2020, upon the closing of this offering, a total of 16,916,990 shares of common stock and non-voting common stock will be outstanding, assuming (i) the issuance of 3,629,400 shares of non-voting common stock in exchange for 2,630,000 shares of Series A preferred stock pursuant to the Exchange Agreement and (ii) the automatic conversion of 2,970,000 outstanding shares of our Series A preferred stock into 4,098,600 shares of our common stock upon 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 and our non-voting 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 and non-voting common stock then outstanding, which will equal approximately 169,169 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 (including shares of our non-voting 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 7,728,000 shares of our common stock (including common stock issuable upon conversion of our non-voting 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 **t**o 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.	1,900,000
Evercore Group L.L.C.	1,400,000
Guggenheim Securities, LLC	925,000
Cantor Fitzgerald & Co.	775,000
Total	5,000,000

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 $0.6720 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 750,000 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.

Our common stock has been approved for listing on the Nasdaq Global Market under the symbol "LBPH." Our non-voting common stock will not be listed on any securities exchange.

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	$ 1.12	$ 1.12
Total	$ 5,600,000	$ 6,440,000

We estimate that our portion of the total expenses of this offering, excluding underwriting discounts and commissions payable by us, will be approximately $2.3 million. We have also agreed to reimburse the underwriters for certain of their expenses in an amount up to $40,000.

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, each an EEA State, no shares have been offered or will be offered pursuant to the offering to the public in that EEA State prior to the publication of a prospectus in relation to the shares which has been approved by the competent authority in that EEA State or, where appropriate, approved in another EEA State and notified to the competent authority in that EEA State, all in accordance with the EU Prospectus Regulation, except that it may make an offer to the public in that EEA State of any shares at any time under the following exemptions under the EU Prospectus Regulation:

(a) to any legal entity which is a qualified investor as defined under the EU Prospectus Regulation;

(b) to fewer than 150 natural or legal persons (other than qualified investors as defined under the EU Prospectus Regulation), subject to obtaining the prior consent of the underwriters for any such offer; or

(c) in any other circumstances falling within Article 1(4) of the EU Prospectus Regulation,

provided that no such offer of the Shares shall require the Issuer or any Manager to publish a prospectus pursuant to Article 3 of the EU Prospectus Regulation or supplement a prospectus pursuant to Article 23 of the EU Prospectus Regulation.

For the purposes of this provision, the expression an “offer to the public” in relation to the shares in any EEA State means the communication in any form and by any means of sufficient information on the terms of the offer and any shares to be offered so as to enable an investor to decide to purchase or subscribe for any shares, and the expression “EU Prospectus Regulation” means Regulation (EU) 2017/1129.

Notice to Prospective Investors in the United Kingdom

In relation to the United Kingdom, no shares have been offered or will be offered pursuant to the offering to the public in the United Kingdom prior to the publication of a prospectus in relation to the shares which has been approved by the Financial Conduct Authority in accordance with the UK Prospectus Regulation, except that it may make an offer to the public in the United Kingdom of any shares at any time under the following exemptions under the UK Prospectus Regulation:

(a) to any legal entity which is a qualified investor as defined under the UK Prospectus Regulation;

(b) to fewer than 150 natural or legal persons (other than qualified investors as defined under the UK Prospectus Regulation), subject to obtaining the prior consent of the underwriters for any such offer; or

(c) in any other circumstances falling within Article 1(4) of the UK Prospectus Regulation,

provided that no such offer of the shares shall require us or any underwriter to publish a prospectus pursuant to Article 3 of the UK Prospectus Regulation or supplement a prospectus pursuant to Article 23 of the UK Prospectus Regulation.

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 (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 December 31, 2020, and for the period from January 3, 2020 (inception) through December 31, 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.

LONGBOARD PHARMACEUTICALS, INC.
INDEX TO FINANCIAL STATEMENTS

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 December 31, 2020, the related statements of operations and comprehensive loss, convertible preferred stock and stockholders' deficit, and cash flows for the period January 3, 2020 (inception) through December 31, 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 December 31, 2020, and the results of its operations and its cash flows for the period January 3, 2020 (inception) through December 31, 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. 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
February 19, 2021, except as to the March Forward Stock Split described in Note 1, which is as of March 8, 2021.

LONGBOARD PHARMACEUTICALS, INC.
BALANCE SHEET
(in thousands, except share data and par value)

	December 31, 2020
Assets	
Current assets:	
Cash	$ 55,316
Other current assets	46
Total current assets	55,362
Deferred financing costs	876
Total assets	$ 56,238
Liabilities, Convertible Preferred Stock and Stockholders' Deficit	
Current liabilities:	
Accounts payable (includes related party amounts of $241)	$ 1,213
Accrued research and development expenses	916
Accrued other expenses	845
Accrued compensation and related expenses	161
Total current liabilities	3,135
Commitments and contingencies (See Note 9)	
Convertible preferred stock:	
Series A convertible preferred stock, $0.0001 par value, 5,600,000 shares authorized, issued and outstanding at December 31, 2020; aggregate liquidation preference – $56,000 at December 31, 2020	55,795
Stockholders' deficit:	
Common stock, $0.0001 par value; 10,500,000 shares authorized, 3,840,540 shares issued and outstanding at December 31, 2020, excluding 348,450 shares subject to repurchase as of December 31, 2020	—
Additional paid-in capital	11,708
Accumulated deficit	(14,400)
Total stockholders' deficit	(2,692)
Total liabilities, convertible preferred stock and stockholders' deficit	$ 56,238

See accompanying notes.

LONGBOARD PHARMACEUTICALS, INC.
STATEMENT OF OPERATIONS AND COMPREHENSIVE LOSS
(in thousands, except per share and share data)

	For the Period January 3, 2020 (Inception) through December 31, 2020
Operating expenses:	
Research and development (includes related party amounts of $1,025)	$ 4,633
General and administrative (includes related party amounts of $8,295)	9,767
Total operating expenses	14,400
Loss from operations	(14,400)
Net loss and comprehensive loss	$ (14,400)
Net loss per share, basic and diluted	$ (3.78)
Weighted-average shares outstanding, basic and diluted	3,808,887

See accompanying notes.

LONGBOARD PHARMACEUTICALS, INC.
STATEMENT OF CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT
(in thousands, except share data)

	Convertible Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Deficit	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount			
Balance at January 3, 2020 (Inception)	—	$ —	—	$ —	$ —	$ —	$ —
Purchase of common stock by Arena Pharmaceuticals, Inc.	—	—	3,840,540	—	—	—	—
Arena Pharmaceuticals, Inc. capital contributions	—	—	—	—	3,200	—	3,200
Issuance of Series A convertible preferred stock	5,600,000	56,000	—	—	—	—	—
Series A convertible preferred stock issuance costs	—	(205)	—	—	—	—	—
Stock-based compensation	—	—	—	—	8,508	—	8,508
Net loss		—	—	—	—	(14,400)	(14,400)
Balance at December 31, 2020	5,600,000	$ 55,795	3,840,540	$ —	$ 11,708	$ (14,400)	$ (2,692)

See accompanying notes.

LONGBOARD PHARMACEUTICALS, INC.
STATEMENT OF CASH FLOWS
(in thousands)

	For the Period January 3, 2020 (Inception) through December 31, 2020
Cash flows from operating activities:	
Net loss	$ (14,400)
Adjustments to reconcile net loss to net cash used in operating activities:	
Stock-based compensation expense	8,508
Changes in operating assets and liabilities:	
Other current assets	(46)
Accounts payable	1,213
Accrued research and development expenses	916
Accrued other expenses	206
Accrued compensation and related expenses	161
Net cash used in operating activities	(3,442)
Cash flows from financing activities:	
Capital contributions from Arena Pharmaceuticals, Inc.	3,200
Proceeds from Series A convertible preferred stock financing	56,000
Series A convertible preferred stock financing costs	(205)
Deferred financing costs	(237)
Net cash provided by financing activities	58,758
Net increase in cash	55,316
Cash at the beginning of the period	—
Cash at the end of the period	$ 55,316
Supplemental non-cash investing and financing activities:	
Deferred financing costs in accrued other expenses	$ 639

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 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 Splits

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 (October Forward Stock Split). The par value of the common stock was not adjusted as a result of the October Forward Stock Split and the authorized shares were increased to 2,783,000 shares (or 3,840,540 shares of common stock after giving effect to the March Forward Stock Split (as defined below)) of common stock in connection with the October Forward Stock Split. The accompanying financial statements and notes to the financial statements give retroactive effect to the October Forward Stock Split for the period presented.

On March 5, 2021, the Company filed an amendment to the Company's amended and restated certificate of incorporation to effect a forward stock split of shares of the Company's common stock on a 1.38-for-1 basis (March Forward Stock Split). Adjustments corresponding to the March Forward Stock Split were made to the ratio at which the Company's convertible preferred stock will convert into common stock immediately prior to the closing of the initial public offering (IPO). The par value of the common stock and number of shares authorized were not adjusted as a result of the March Forward Stock Split. All references to common stock, options to purchase common stock, share data, per share data, and related information contained in the financial statements and related footnotes have been retrospectively adjusted to reflect the effect of the March Forward Stock Split for all periods presented.

Basis of Presentation

The accompanying financials statements include the financial results from inception (January 3, 2020) through December 31, 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 for certain Arena corporate expenses, including equity-related separation costs of $7.4 million related to the Chief Executive Officer's transition from Arena to Longboard as detailed in Note 7, 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. Effective October 27, 2020, the Company entered into a formal services agreement with Arena for these services (see Note 6). 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 $3.2 million from Arena to fund start-up activities throughout the

period ended December 31, 2020. The capital contributions from Arena have been presented in additional paid-in capital on the balance sheet and statement of convertible preferred stock and stockholders' deficit.

Since its inception, the Company has devoted substantially all of its resources to organizing and staffing, 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. The Company has incurred losses and negative cash flows from operations since commencement of its operations. The Company had an accumulated deficit of $14.4 million and cash of $55.3 million as of December 31, 2020.

From its inception through December 31, 2020, the Company had funded its operations through the capital contributions from Arena and received aggregate gross proceeds of $56.0 million from the sale and issuance of 5,600,000 shares of Series A Convertible Preferred Stock in October 2020 (see Note 5). Management believes that its capital resources as of December 31, 2020 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 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.

Deferred Financing Costs

The Company has deferred financing costs consisting of legal, accounting and other fees and costs directly attributable to its planned IPO. The deferred financing costs will be offset against the proceeds received upon the completion of the planned IPO. In the event the planned IPO is terminated, all of the deferred financing costs will be expensed within the Company's statement of operations and comprehensive loss. As of December 31, 2020, $0.9 million of deferred financing costs were recorded on the balance sheet.

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 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 those external costs, the Company incurred research and development expenses through the services agreements described in Note 6. Research and development expenses amounted to $4.6 million for the period from January 3, 2020 (inception) through December 31, 2020.

Stock-Based Compensation

On October 27, 2020, the Company's board of directors and stockholder approved the 2020 Equity Incentive Plan (the 2020 Plan). Under the 2020 Plan, awards are measured at fair value and recognized over the requisite service period. Forfeitures are accounted for in the period they occur. The Company estimates the fair value of each stock-based award 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 term of the option.

From January 3, 2020 through October 26, 2020, Company employees participated 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. There were no forfeitures.

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 December 31, 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, diluted net loss per share of common stock is the same as basic net loss per share of common stock for the period.

The following outstanding shares of potentially dilutive securities were excluded from the computation of diluted net loss per share attributable to common stockholders for the period presented because including them would have been anti-dilutive:

	Year Ended December 31, 2020
Options to purchase common stock	873,264
Restricted stock awards, issued but unvested	348,450
Series A Preferred Stock (on an as-converted to common stock basis)	7,728,000
Total	8,949,714

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 June 2020, the FASB issued ASU 2020-05, Revenue from Contracts with Customers (Topic 606) and *Leases (Topic 842)*: Effective Dates for certain Entities, which deferred 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, 2021, and interim periods within fiscal years beginning after December 15, 2022. The Company plans to adopt the new standard in the first quarter of 2022 using the modified retrospective method, under which the Company applies Topic 842 to existing and new leases as of January 1, 2022, 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 plans to adopt this new standard in the first quarter of 2021 and 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 December 31, 2020, the Company did not have financial assets or liabilities that are measured at fair value on a recurring basis.

4. Accrued Other Expenses

Accrued other expenses consisted of the following (in thousands):

	December 31, 2020
Accrued financing costs	$ 639
Accrued consulting fees	115
Accrued other	91
	$ 845

5. Convertible Preferred Stock and Stockholders' Deficit

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.

Common Stock

As of December 31, 2020, the Company has 3,840,540 shares of common stock outstanding, excluding 348,450 shares subject to repurchase. 3,840,540 shares were purchased by Arena for aggregate consideration of $0.10 in January 2020.

Series A Preferred Stock

In October 2020, the Company issued and sold 5,600,000 shares of 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 Company incurred $0.2 million in issuance costs related to the Series A Preferred Stock financing.

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 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 Series A 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.

Classification

The Company's Series A Preferred Stock has been classified as temporary equity in the accompanying balance sheet in accordance with authoritative guidance for the classification and measurement of potentially redeemable securities whose redemption is based upon certain change in control events outside of the Company's control, including liquidation, sale or change of control of the Company. The Company has determined not to adjust the carrying values of the convertible preferred stock to the liquidation preferences of such shares because of the uncertainty of whether or when such events would occur. Adjustments to increase the carrying values to the respective liquidation preferences will be made if and when it becomes probable that an event would occur obligating the Company to pay such amounts.

6. 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. Services provided under the Services Agreement are recorded to research and development expenses or general and administrative expenses, on the statement of operations, as appropriate.

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. The Company expensed this amount to research and development expense on the statement of operations and comprehensive loss as lorcaserin is subject to regulatory approval and there are risks and uncertainties as to whether royalties will ultimately be paid and collected.

7. Stock-Based Compensation

Adoption of 2020 Equity Incentive Plan

On October 27, 2020, the Company's board of directors and stockholder approved 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 2,369,460 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 under the 2020 Plan

From October 27, 2020 through December 31, 2020, 873,264 stock options were granted to the Company's employees, directors and consultants under the 2020 Plan, which vest over a two to four year period, based on continuous service.

A summary of the Company's 2020 Plan stock option activity is as follows:

	Number of Options Outstanding	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (in Years)
Balance at October 27, 2020	—	$ —	—
Options granted	873,264	3.42	9.9
Options exercised	—	—	—
Options cancelled	—	—	—
Balance at December 31, 2020	873,264	$ 3.42	9.9
Options exercisable at December 31, 2020	348,450	$ 3.12	9.8

No stock options were vested as of December 31, 2020, however, 348,450 stock options are subject to an early exercise provision. The intrinsic value of options outstanding and exercisable as of December 31, 2020 were both $0.2 million.

The following table presents the weighted-average assumptions used for the stock option grants for the period from October 27, 2020 through December 31, 2020, along with the related grant date fair value:

	For the Period October 27, 2020 through December 31, 2020
Stock price	$ 3.42
Risk-free interest rate	0.56%
Dividend yield	0.00%
Expected volatility	72.14%
Expected life (years)	6.8
Estimated grant date fair value per share of award granted	$ 2.25

Determination of Fair Value of Common Stock. As there has been no public market for the Company's common stock to date, the estimated fair value of common stock has been determined by the Company's board of directors as of the date of each option grant, with input from management, considering the most recently available third-party valuations of common stock and the 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 the common stock at each valuation date.

In addition to considering the results of these independent third-party valuations, the Company's board of directors considered various objective and subjective factors to determine the fair value of its common stock as of each grant date, including: the prices of the preferred stock sold to or exchanged between outside investors in arm's length transactions and the rights, preferences and privileges of the preferred stock as compared to those of the Company's common stock including liquidation preferences of the Company's preferred stock; the progress of the Company's research and development programs, including the status and results of preclinical and clinical trials for product candidates; the stage of development and material risks related to the Company's business; external market and other conditions affecting the biopharmaceutical industry and trends within the biopharmaceutical industry; the Company's business conditions and projections; the Company's financial position and its historical and forecasted performance and operating results; the lack of an active public market for the Company's common stock and preferred stock; the likelihood of achieving a liquidity event for the Company's securityholders, such as an initial public offering or a sale of the Company in light of prevailing market conditions; the hiring of key personnel and the experience of management; and the analysis of initial public offerings and the market performance of similar companies in the biopharmaceutical industry, as well as trends and developments in the biopharmaceutical industry.

Significant changes to the key assumptions underlying the factors used could result in different fair values of common stock at each valuation date.

Risk-free interest rate. The risk-free interest rate is based on the U.S. Treasury yield in effect at the time of grant for zero coupon U.S. Treasury notes with maturities similar to the expected term of the awards.

Expected dividend yield. The Company bases the expected dividend yield assumption on the fact that it has never paid cash dividends and has no present intention to pay cash dividends and, therefore, used an expected dividend yield of zero.

Expected volatility. Since the Company is not yet a public company and does not have a trading history for its common stock, the expected volatility assumption is based on volatilities of a peer group of similar companies whose share prices are publicly available. The peer group was developed based on companies in the biotechnology industry. The Company will continue to apply this process until a sufficient amount of historical information regarding the volatility of its own stock price becomes available.

Expected life. The expected life represents the period of time that options are expected to be outstanding. Because the Company does not have historical exercise behavior, it determines the expected life assumption using the simplified method, for employees, which is an average of the contractual term of the option and its vesting period. The expected term for nonemployee options is equal to the contractual term.

In October 2020, 348,450 restricted stock awards were granted to an employee under the 2020 Plan, which vest over three years and had an estimated fair value of $3.12 per share at the time of grant.

There were 1,147,746 shares available for grant under the 2020 Plan as of December 31, 2020.

Stock Award Grants under the Arena Amended and Restated 2017 Long-Term Incentive Plan (Arena 2017 LTIP)

Prior to October 27, 2020, the Company did not have its own equity incentive plan. Stock award grants from the period of January 3, 2020 through October 26, 2020, were made under the 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.

Under the Arena 2017 LTIP, 70,000 stock options were granted to the Company's Chief Executive Officer. 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.

As of October 27, 2020, in connection with the Series A Preferred Stock financing, the employees of the Company are no longer eligible to participate in the Arena 2017 LTIP.

The following table presents the assumptions used for the stock option grants under the Arena 2017 LTIP for the period from January 3, 2020 (inception) through October 26, 2020, along with the related grant date fair value:

	For the Period January 3, 2020 (Inception) through October 26, 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

In connection with the Series A Preferred Stock financing and the formal commencement of the Chief Executive Officer's (Mr. 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 equity awards outstanding at Arena as of the separation date.

Stock-Based Compensation Expense

The Company recognized $8.5 million of stock-based compensation expense for the period ended December 31, 2020. This amount includes a one-time expense of $7.4 million related to the acceleration of vesting and the extension of the exercise period for Mr. Lind's equity awards outstanding at Arena, as well as $1.0 million related to awards granted under the Arena 2017 LTIP and $0.2 million related to awards granted under the 2020 Plan. Total expenses of $8.3 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. As of December 31, 2020, unrecognized stock-based compensation expense was $2.9 million, which is expected to be recognized over a remaining weighted average period of approximately 3.4 years.

8. 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 December 31, 2020
Benefit for income taxes at statutory federal rate	$ (3,024)
Permanent items	1,764
Research and development credits	(161)
Change in valuation allowance	1,421
Provision for income taxes	$ —

Significant components of the Company's deferred taxes were as follows (in thousands):

	December 31, 2020
Deferred tax assets:	
Net operating loss carryforward	$ 1,204
Research and development carryforwards	161
Stock-based compensation expense	23
Other, net	33
Total deferred tax assets	1,421
Less: Valuation allowance	(1,421)
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 December 31, 2020 was $1.4 million.

As of December 31, 2020, the Company had federal net operating loss (NOL) carryforwards of $5.7 million that will not expire. As of December 31, 2020, the Company also had federal and California research and development tax credit carryforwards, net of reserves, of $113,000 and $49,000, 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 December 31, 2020, the Company had gross unrecognized tax benefits of $31,000, 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 December 31, 2020 and has not recognized interest and/or penalties in its statement of operations and comprehensive loss for the period ended December 31, 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.

9. 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 $9,000 for the period January 3, 2020 (inception) through December 31, 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 December 31, 2020, the Company is not a party to any litigation.

10. Employment Benefits

The Company's employees who had been Arena employees were eligible to participate in Arena's employee 401(k) salary deferral plan, which covers all Arena employees. Employees made contributions by withholding a percentage of their salary up to the IRC annual limit. The Company made matching contributions of $16,000 from January 3, 2020 (inception) through October 26, 2020. After that date, the Company's employees were no longer eligible to participate in Arena's employee 401(k) salary deferral plan. The Company did not have a 401(k) salary deferral plan as of December 31, 2020.

11. Subsequent Events

The Company has evaluated subsequent events through February 19, 2021, the date the financial statements were issued, except for the March Forward Stock Split, discussed below. Except as described below, the Company has concluded that no subsequent events have occurred that require disclosure.

From January 1, 2021 through February 19, 2021, 194,269 stock options were granted to the Company's employees under the 2020 Plan, which vest over a four year period.

On March 5, 2021, the Company filed an amendment to the Company's amended and restated certificate of incorporation to effect the March Forward Stock Split. Adjustments corresponding to the March Forward Stock Split were made to the ratio at which the Company's convertible preferred stock will convert into common stock immediately prior to the closing of the IPO. The par value of the common stock and number of shares authorized were not adjusted as a result of the March Forward Stock Split. All references to common stock, options to purchase common stock, share data, per share data, and related information contained in the financial statements and related footnotes have been retrospectively adjusted to reflect the effect of the March Forward Stock Split for all periods presented.

5,000,000 Shares

Longboard Pharmaceuticals, Inc.

Common Stock

PROSPECTUS

March 11, 2021

Citigroup **Evercore ISI** **Guggenheim Securities** **Cantor**

Through and including April 5, 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.