INDEX

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

FORM 10-Q

☒ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the quarterly period ended March 31, 2021

or

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from to

Commission File Number: 000-31161

ARENA PHARMACEUTICALS, INC.
(Exact name of registrant as specified in its charter)

Delaware (State or other jurisdiction of incorporation or organization)	**23-2908305** (I.R.S. Employer Identification No.)
136 Heber Avenue, Suite 204, Park City, UT (Address of principal executive offices)	**84060** (Zip Code)

858.453-7200
(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.0001 per share	ARNA	The Nasdaq Global Select Market

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. x Yes ☐ No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes x No ☐

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

Large accelerated filer	x	Accelerated filer	☐
Non-accelerated filer	☐	Small reporting company	☐
		Emerging growth company	☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). ☐ Yes x No

The number of shares of common stock outstanding as of the close of business on April 29, 2021:

Class	Number of Shares Outstanding
Common Stock, $0.0001 par value	60,696,200

ARENA PHARMACEUTICALS, INC.

INDEX

TRADEMARKS AND CERTAIN TERMS

In this Quarterly Report on Form 10-Q, "Arena Pharmaceuticals," "Arena," "Company," "we," "us" and "our" refer to Arena Pharmaceuticals, Inc., and our wholly owned subsidiaries on a consolidated basis, unless the context otherwise provides. "APD" is an abbreviation for Arena Pharmaceuticals Development.

Arena Pharmaceuticals ® and Arena ® are registered service marks of Arena. Any other brand names or trademarks appearing in this Quarterly Report on Form 10-Q are the property of their respective holders.

PART I. FINANCIAL INFORMATION

Item 1. Financial Statements.

ARENA PHARMACEUTICALS, INC.

Condensed Consolidated Balance Sheets
(In thousands, except share data)
(Unaudited)

	March 31, 2021	December 31, 2020
Assets		
Current assets:		
Cash and cash equivalents	$ 432,978	$ 219,544
Short-term investments, available-for-sale	655,846	884,497
Prepaid expenses and other current assets	32,781	35,266
Total current assets	1,121,605	1,139,307
Land, property and equipment, net	21,129	22,090
Other non-current assets	41,202	29,323
Total assets	$ 1,183,936	$ 1,190,720
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable and other accrued liabilities	$ 21,980	$ 35,351
Accrued clinical and preclinical study fees	20,969	18,325
Current portion of lease financing obligations	4,558	4,401
Total current liabilities	47,507	58,077
Other long-term liabilities	10,410	10,963
Lease financing obligations, less current portion	40,027	41,211
Commitments and contingencies		
Stockholders' equity:		
Preferred stock, $0.0001 par value, 7,500,000 shares authorized, no shares issued and outstanding at March 31, 2021 and December 31, 2020	—	—
Common stock, $0.0001 par value, 147,000,000 shares authorized at March 31, 2021 and December 31, 2020; 60,619,144 and 58,611,210 shares issued and outstanding at March 31, 2021 and December 31, 2020, respectively	6	6
Additional paid-in capital	2,711,930	2,587,494
Accumulated other comprehensive income	204	700
Accumulated deficit	(1,626,148)	(1,507,731)
Total stockholders' equity	1,085,992	1,080,469
Total liabilities and stockholders' equity	$ 1,183,936	$ 1,190,720

See accompanying notes to unaudited condensed consolidated financial statements.

ARENA PHARMACEUTICALS, INC.

Condensed Consolidated Statements of Operations and Comprehensive Loss
(In thousands, except per share data)
(Unaudited)

	Three Months Ended March 31,	
	2021	**2020**
Revenues:		
Royalty revenue	$ —	$ 262
Total revenues	—	262
Operating Costs and Expenses:		
Research and development	102,535	78,533
Selling, general and administrative	29,458	26,442
Total operating costs and expenses	131,993	104,975
Loss from operations	(131,993)	(104,713)
Interest and Other Income (Expense):		
Interest income	690	4,946
Interest expense	(1,073)	(1,163)
Other income, net	90	723
Gain from Longboard equity method investment	13,869	—
Total interest and other income (expense), net	13,576	4,506
Net loss	$ (118,417)	$ (100,207)
Net loss per share, basic and diluted:	$ (1.98)	$ (2.00)
Shares used in calculating net loss per share, basic and diluted:	59,780	50,228
Comprehensive Loss:		
Net loss	$ (118,417)	$ (100,207)
Foreign currency translation loss	(165)	(14)
Unrealized loss on available-for-sale investments	(331)	(1,164)
Comprehensive loss	$ (118,913)	$ (101,385)

See accompanying notes to unaudited condensed consolidated financial statements.

ARENA PHARMACEUTICALS, INC.

Condensed Consolidated Statements of Stockholders' Equity
(In thousands, except share data)
(Unaudited)

	Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
Balance at December 31, 2020	**58,611,210**	**$ 6**	**$ 2,587,494**	**$ 700**	**$ (1,507,731)**	**$ 1,080,469**
Shares issued from stock plans, net of payroll taxes paid	766,792	—	8,982	—	—	8,982
Share-based compensation expense	—	—	17,016	—	—	17,016
Issuance of common stock under the ATM facility, net	1,241,142	—	98,438	—	—	98,438
Unrealized loss on available-for-sale investments	—	—	—	(331)	—	(331)
Translation loss	—	—	—	(165)	—	(165)
Net loss	—	—	—	—	(118,417)	(118,417)
Balance at March 31, 2021	**60,619,144**	**$ 6**	**$ 2,711,930**	**$ 204**	**$ (1,626,148)**	**$ 1,085,992**

	Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
Balance at December 31, 2019	**50,170,953**	**$ 5**	**$ 2,173,154**	**$ 1,303**	**$ (1,102,997)**	**$ 1,071,465**
Shares issued from stock plans, net of payroll taxes paid	**125,761**	**—**	**3,191**	**—**	**—**	**3,191**
Share-based compensation expense	—	—	15,214	—	—	15,214
Unrealized loss on available-for-sale investments	—	—	—	(1,164)	—	(1,164)
Translation loss	—	—	—	(14)	—	(14)
Net loss	—	—	—	—	(100,207)	(100,207)
Balance at March 31, 2020	**50,296,714**	**$ 5**	**$ 2,191,559**	**$ 125**	**$ (1,203,204)**	**$ 988,485**

See accompanying notes to unaudited condensed consolidated financial statements.

ARENA PHARMACEUTICALS, INC.

Condensed Consolidated Statements of Cash Flows
(In thousands)
(Unaudited)

	Three Months Ended March 31,	
	2021	2020
Operating Activities:		
Net loss	$ (118,417)	$ (100,207)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	974	950
Share-based compensation	17,016	15,214
Amortization of net premiums (discounts) on available-for-sale investments	1,113	(264)
Gain from Longboard equity method investment	(13,869)	—
Other operating activities, net	1,659	22
Changes in operating assets and liabilities:		
Accounts receivable	(379)	1,498
Prepaid expenses and other assets	3,194	(9,818)
Accounts payable, accrued liabilities and other current liabilities	(11,280)	(1,440)
Net cash used in operating activities	(119,989)	(94,045)
Investing Activities:		
Purchases of available-for-sale investments	(161,178)	(182,794)
Proceeds from sale and maturity of available-for-sale investments	388,385	222,235
Purchases of property and equipment	(97)	(532)
Net cash provided by investing activities	227,110	38,909
Financing Activities:		
Principal payments on lease financing obligations	(1,027)	(887)
Proceeds from issuance of common stock under ATM facility, net	98,438	—
Proceeds from issuance of common stock from stock plans, net	8,982	3,191
Net cash provided by financing activities	106,393	2,304
Effect of exchange rate changes on cash	(80)	(14)
Net change in cash, cash equivalents and restricted cash	213,434	(52,846)
Cash, cash equivalents and restricted cash at beginning of period	219,770	243,500
Cash, cash equivalents and restricted cash at end of period	$ 433,204	$ 190,654
Supplemental Disclosure:		
Cash paid for interest	$ 1,057	$ 1,147

See accompanying notes to unaudited condensed consolidated financial statements.

ARENA PHARMACEUTICALS, INC.

Notes to Unaudited Condensed Consolidated Financial Statements

1. Basis of Presentation

The accompanying unaudited condensed consolidated financial statements of Arena Pharmaceuticals, Inc. should be read in conjunction with the audited consolidated financial statements and notes thereto included in its Annual Report on Form 10-K for the year ended December 31, 2020, as filed with the Securities and Exchange Commission, or SEC, from which the Company derived its condensed consolidated balance sheet as of December 31, 2020. The accompanying condensed consolidated financial statements have been prepared in accordance with US generally accepted accounting principles, or GAAP, for interim financial information and with the instructions to Form 10-Q and Article 10 of Regulation S-X. Accordingly, since they are interim statements, the accompanying condensed consolidated financial statements do not include all of the information and notes required by GAAP for complete financial statements. The accompanying condensed consolidated financial statements reflect all adjustments, consisting of normal recurring adjustments, that are, in the opinion of our management, necessary to a fair statement of the results for the interim periods presented. Interim results are not necessarily indicative of results for a full year, particularly in light of the pandemic of coronavirus disease 2019, or COVID-19, and its impact on domestic and global economies.

Liquidity.

As of March 31, 2021, the Company had cash, cash equivalents and available-for-sale investments of approximately $1.1 billion. The Company believes its cash, cash equivalents and available-for-sale investments will be sufficient to fund its operations for at least the next 12 months.

The Company will require substantial cash to achieve its objectives of discovering, developing and commercializing drugs, as this process typically takes many years and potentially hundreds of millions of dollars for an individual drug. The Company may not have adequate available cash, or assets that could be readily turned into cash, to meet these objectives in the long term. The Company will need to obtain significant funds under its existing collaborations, under new collaborations, licensing or other commercial agreements for one or more of its drug candidates, programs or patent portfolios, or from other potential sources of liquidity, which may include the sale of equity, issuance of debt or other transactions. The Company's ability to raise additional funds may be adversely impacted by potential worsening global economic conditions and potential disruptions to, and volatility in, the credit and financial markets in the United States and worldwide resulting from the ongoing COVID-19 pandemic. If the Company is not able to secure adequate additional funding, it may be forced to make reductions in spending, extend payment terms with its clinical research organizations and suppliers, liquidate assets where possible and/or suspend or curtail planned programs. Any of these actions could materially harm the Company's business, results of operations and future prospects. To the extent the Company obtains additional funding through product collaborations, these arrangements would generally require it to relinquish rights to some of its product candidates or products, and the Company may not be able to enter into such agreements on acceptable terms, if at all.

Use of Estimates.

The preparation of financial statements in accordance with GAAP requires the Company's management to make estimates and assumptions that affect the reported amounts (including assets, liabilities, revenues and expenses) and related disclosures. The amounts reported could differ under different estimates and assumptions.

Reclassifications.

Certain prior period amounts have been reclassified to conform to the current period presentation.

Contingencies.

The Company discloses information regarding each material claim where the likelihood of a loss contingency is probable or reasonably possible. The ability to predict the ultimate outcome of such matters involves judgments, estimates and inherent uncertainties. The actual outcome of such matters could differ materially from management’s estimates.

Recent Accounting Pronouncements.

From time to time, new accounting pronouncements are issued by the Financial Accounting Standards Board (the "FASB") or other standard setting bodies and adopted by the Company as of the specified effective date. Unless otherwise discussed below, the Company believes that the impact of recently issued standards that are not yet effective will not have a material impact on its consolidated financial statements upon adoption.

The following table provides a brief description of recently issued or adopted accounting standards:

Standard	Description	Effective Date	Effect on the Financial Statements or Other Significant Matters
ASU 2019-12, Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes	ASU 2019-12 modifies ASC 740, Income Taxes to simplify the accounting for income taxes in various areas.	January 1, 2021	The Company adopted ASU 2019-12 on January 1, 2021 which did not have a material impact on its consolidated financial statements.
ASU 2020-01, Investments—Equity Securities (Topic 321), Investments—Equity Method and Joint Ventures (Topic 323), and Derivatives and Hedging (Topic 815)	ASU 2020-01 clarifies the interactions between Topic 321 (equity securities), Topic 323 (equity method and joint ventures) and Topic 815 (derivatives and hedge accounting). The ASU addresses the accounting for the transition into and out of the equity method and measuring certain purchased options and forward contracts to acquire investments.	January 1, 2021	The Company adopted ASU 2020-01 on January 1, 2021 which did not have a material impact on its consolidated financial statements.
ASU 2020-08, Codification Improvements to Subtopic 310-20, Receivables—Nonrefundable Fees and Other Cost	ASU 2020-08 clarifies an entity should, for each reporting period, reevaluate the amortization period for a premium paid on an individual callable debt security that has multiple call dates.	January 1, 2021	The Company adopted ASU 2020-08 on January 1, 2021 which did not have a material impact on its consolidated financial statements.

Concentrations of Credit Risk.

The Company's financial instruments, which potentially subject the Company to concentrations of credit risk, consist primarily of cash, cash equivalents and available-for-sale investments. The Company limits its exposure to credit loss by holding cash primarily in US dollars or placing its cash and investments in US government, agency or government-sponsored enterprise obligations and in corporate debt instruments that are rated investment grade, in accordance with an investment policy approved by its Board of Directors.

2. Cash, cash equivalents and restricted cash

The following table provides a reconciliation of the components of cash, cash equivalents and restricted cash reported in the accompanying condensed consolidated balance sheets to the total of the amount presented in the condensed consolidated statements of cash flows, in thousands:

	March 31, 2021	December 31, 2020
Cash and cash equivalents	$ 432,978	$ 219,544
Restricted cash included in other non-current assets	226	226
Total cash, cash equivalents and restricted cash presented in the condensed consolidated statements of cash flows	$ 433,204	$ 219,770

The restricted cash relates to the Company's property leases. The restriction will lapse when the related leases expire.

3. Fair Value Disclosures

The Company's investments include cash equivalents and available-for-sale investment securities consisting of money market funds, U.S. treasury notes, and high quality, marketable debt instruments of corporations and government sponsored enterprises in accordance with the Company's investment policy. The Company's investment policy defines allowable investment securities and establishes guidelines relating to credit quality, diversification, and maturities of its investments to preserve principal and maintain liquidity.

The Company measures its financial assets and liabilities at fair value, which is defined as the exit price, or the amount that would be received from selling an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.

The Company uses the following three-level valuation hierarchy that maximizes the use of observable inputs and minimizes the use of unobservable inputs to value its financial assets and liabilities:

Level 1 - Observable inputs such as unadjusted quoted prices in active markets for identical instruments.

Level 2 - Quoted prices for similar instruments in active markets or inputs that are observable for the asset or liability, either directly or indirectly.

Level 3 - Significant unobservable inputs based on our assumptions.

The following tables present the Company's valuation hierarchy for its financial assets that are measured at fair value on a recurring basis, in thousands:

	Fair Value Measurements as of March 31, 2021			
	Level 1	Level 2	Level 3	Total
Money market funds[1]	$ 338,669	$ —	$ —	$ 338,669
US government and government agency notes[2]	418,205	—	—	418,205
Corporate debt securities[2]	—	128,134	—	128,134
Commercial paper[2]	—	109,507	—	109,507
	756,874	237,641	—	994,515

	Fair Value Measurements as of December 31, 2020			
	Level 1	Level 2	Level 3	Total
Money market funds[1]	$ 64,361	$ —	$ —	$ 64,361
US government and government agency notes[2]	621,400	—	—	621,400
Corporate debt securities[3]	—	162,906	—	162,906
Commercial paper[3]	—	131,525	—	131,525
	$ 685,761	$ 294,431	$ —	$ 980,192

(1) Included in cash and cash equivalents in the accompanying condensed consolidated balance sheets.
(2) Included in available-for-sale investments in the accompanying condensed consolidated balance sheets.
(3) Included in either cash and cash equivalents or available-for-sale investments in the accompanying condensed consolidated balance sheets.

The Company obtains the fair value of its Level 2 financial instruments from third-party pricing services. The pricing services utilize industry standard valuation models whereby all significant inputs, including benchmark yields, reported trades, broker/dealer quotes, issuer spreads, bids, offers, or other market-related data, are observable. The Company validates the prices provided by the third-party pricing services by reviewing their pricing methods and matrices and obtaining market values from other pricing sources. The Company did not adjust or override any fair value measurements provided by these pricing services as of March 31, 2021 and December 31, 2020, respectively. The Company has not transferred any investment securities between the classification levels.

4. Investments, Available-for-Sale

Investments, available-for-sale, consisted of the following, in thousands:

March 31, 2021	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
US government and government agency notes	$ 418,166	$ 54	$ (15)	$ 418,205
Corporate debt securities	128,038	145	(49)	128,134
Commercial paper	109,515	9	(17)	109,507
Short-term investments, available-for-sale	$ 655,719	$ 208	$ (81)	$ 655,846

December 31, 2020	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
US government and government agency notes	$ 621,281	$ 178	$ (59)	$ 621,400
Corporate debt securities	160,244	362	(38)	160,568
Commercial paper	102,513	22	(6)	102,529
Short-term investments, available-for-sale	$ 884,038	$ 562	$ (103)	$ 884,497

5. Land, Property and Equipment, net

Land, property and equipment, net consisted of the following, in thousands:

	March 31, 2021	December 31, 2020
Cost	$ 74,733	$ 74,753
Less accumulated depreciation and amortization	(53,604)	(52,663)
Land, property and equipment, net	$ 21,129	$ 22,090

6. Equity Method Investment

In October 2020, the Company announced the launch and $56.0 million Series A financing of Longboard Pharmaceuticals, Inc., or Longboard (formerly known as Arena Neuroscience, Inc.), which is expected to focus on developing novel central nervous system, or CNS, targeted assets discovered by the Company's GPCR research engine. Longboard was previously a wholly owned subsidiary of Arena. As of the completion of Longboard's Series A financing in October 2020, the Company's ownership in Longboard comprised approximately 33.4% of the outstanding shares of capital stock of Longboard. The Company has licensed certain development and worldwide commercialization rights to Longboard and is entitled to receive royalties on potential sales of LP352, LP143 and LP659, in the future. In October 2020, the Company also entered into a separate services agreement with Longboard, pursuant to which it agreed to perform certain research and development services, general and administrative services, management services and other mutually agreed services for Longboard and receive service fees. The Company's investment is accounted for as an equity method investment, and the investee, Longboard, is considered a related party.

In March 2021, Longboard completed an initial public offering ("IPO") and the Company's ownership was diluted to 23.5%. The Company recorded a gain of approximately $13.9 million during the three months ended March 31, 2021 as a result of the offering to account for the related ownership dilution of its equity method investment. The gain was determined based upon the Company's proportionate share of the increase in the net assets of Longboard from the offering.

The carrying value and ownership percentage of the Company's equity method investment is as follows, in thousands, except ownership percentages:

		March 31, 2021		December 31, 2020	
	Balance Sheet Location	Carrying Value	Ownership %	Carrying Value	Ownership %
Longboard	Other non-current assets	$ 24,542	23.5 %	$ 12,331	33.4 %

Amounts included in the Company's consolidated statements of operations related to the equity method investment is as follows, in thousands:

	Income Statement Location	Three Months Ended March 31, 2021
Equity in losses from Longboard	Other income, net	$ (1,658)
Gain from Longboard IPO	Gain from Longboard equity method investment	$ 13,869

Accounts receivable due from Longboard related to the service agreement was approximately $1.8 million as of March 31, 2021 and is classified in "Prepaid expenses and other current assets" in the condensed consolidated balance sheets.

7. Accounts Payable and Other Accrued Liabilities

Accounts payable and other accrued liabilities consisted of the following, in thousands:

	March 31, 2021	December 31, 2020
Accounts payable	$ 9,547	$ 12,004
Accrued compensation	6,777	18,846
Other accrued liabilities	5,656	4,501
Total accounts payable and other accrued liabilities	$ 21,980	$ 35,351

8. Collaborations and License Agreements

Refer to the Company's Annual Report on Form 10-K for the year ended December 31, 2020, for more information on its significant collaboration and license agreements.

In 2016, the Company entered into a License and Collaboration Agreement with Beacon, pursuant to which the Company granted Beacon a non-exclusive, non-assignable and non-sublicensable license to certain database information relating to compounds, receptors and pharmacology, and transferred certain equipment to Beacon.

In the first quarter of 2021, the Company received a $1.1 million payment as a result of the merger ("Merger") between Eurofins Beacon Discovery Holdings, Inc. ("Eurofins") and Beacon Discovery, Inc. ("Beacon"). This payment satisfied Beacon's obligation to pay the Company a percentage of the consideration for such sale transaction in the event that Beacon is sold as outlined in the 2016 License and Collaboration Agreement. The Company is eligible to receive future contingent consideration payments based on certain performance metrics achieved by Beacon over a four-year performance period through the first quarter of 2025 up to an aggregate of $2.0 million.

Following the Merger, the Company entered into a Consent and Release Agreement that terminated the Company's rights of negotiation and rights of first refusal to potentially obtain licenses to certain compounds discovered and developed by Beacon. In addition, the Consent and Release Agreement terminated the Company's right, under the 2016 License and Collaboration Agreement, to receive any revenue received by Beacon including upfront payments, milestone payments and royalties. The 2020 Collaboration and License Agreement with Beacon remains in effect and was not impacted by the Merger.

9. Stockholders' Equity

In February 2020, the Company entered into a sales agreement with Credit Suisse Securities (USA) LLC, SVB Leerink LLC and Cantor Fitzgerald & Co., pursuant to which it may sell and issue shares of its common stock having an aggregate offering price of up to $250.0 million from time to time in transactions that are deemed to be "at-the-market offering" as defined in Rule 415(a)(4) under the Securities Act of 1933, as amended, or Securities Act.

During the first quarter of 2021, the Company sold 1.2 million shares of common stock under the sales agreement at a weighted average price of $81.06 per share and realized gross proceeds of $100.6 million. As of April 29, 2021, the Company may sell and issue approximately $149.4 million in additional shares under the sales agreement.

The Company recognized share-based compensation expense by function as follows, in thousands:

	Three Months Ended March 31,	
	2021	2020
Research and development	$ 8,213	$ 6,591
Selling, general and administrative	8,803	8,623
Total share-based compensation expense	$ 17,016	$ 15,214

The Company recognized share-based compensation expense by grant type as follows, in thousands:

	Three Months Ended March 31,	
	2021	2020
Stock options	$ 14,006	$ 13,079
Restricted stock units	1,305	419
Performance-based restricted stock units	1,470	1,581
Employee stock purchase plan	235	135
Total share-based compensation expense	$ 17,016	$ 15,214

Stock Options

In March 2021, 1,062,226 stock options were granted to employees in a company-wide grant. The stock options vest over four years from the grant date. The grant-date fair value of $36.5 million is recognized as compensation expense over the vesting period.

The fair value of each option issued to employees was estimated on the date of grant using the Black-Scholes option pricing model with the following weighted-average assumptions:

	Three Months Ended March 31,	
	2021	2020
Expected volatility	54 %	58 %
Expected term (in years)	4.27	4.51
Risk-free interest rate	0.49 %	0.79 %
Expected dividend yield	0.0 %	0.0 %

The following table summarizes the stock option activity under the Company's stock option plans during the three months ended March 31, 2021 (in thousands, except per share amounts and years):

	Options	Weighted-Average Exercise Price	Weighted-Average Contractual Life (in years)	Intrinsic Value[(1)]
Outstanding at January 1, 2021	8,699	$ 40.33		
Granted	1,170	80.10		
Exercised	(564)	26.49		
Forfeited/cancelled/expired	(263)	47.09		
Outstanding at March 31, 2021	9,042	$ 46.15	4.65	$ 224,038
Exercisable at March 31, 2021	4,223	$ 35.80	3.62	$ 142,131

(1) The aggregate intrinsic value is calculated as the difference between the exercise price of the underlying options and the estimated fair value of the common stock for the options that were in the money at March 31, 2021.

The aggregate intrinsic value of options exercised during the three months ended March 31, 2021 was $27.9 million.

As of March 31, 2021, there was approximately $118.4 million of unrecognized compensation expense related to unvested stock options that is expected to be recognized over a weighted-average period of 2.8 years.

Restricted Stock Units

In March 2021, a total of 349,645 Restricted Stock Units, or RSUs, were granted to employees in a company-wide grant. The RSUs vest over four years from the grant date. The grant-date fair value of $28.0 million is recognized as compensation expense over the vesting period.

Restricted stock unit awards are share awards that, upon vesting, will deliver to the holder shares of the Company's common stock. The following table summarizes the Company's RSU activity during the three months ended March 31, 2021, in thousands (except grant date fair value data):

	Number of Shares	Weighted-Average Grant Date Fair Value
Non-vested at January 1, 2021	243	$ 54.00
Granted	369	80.15
Released	(5)	56.50
Forfeited/cancelled	(17)	54.15
Non-vested at March 31, 2021	590	$ 70.32

As of March 31, 2021, there was approximately $37.7 million of unrecognized compensation expense related to unvested RSUs that is expected to be recognized over a remaining weighted-average period of 3.7 years.

Performance-Based Restricted Stock Units

In March 2021, a total of 205,072 target Performance-Based Restricted Stock Units, or PRSUs, were granted to employees in a company-wide grant. The PRSUs vest upon the closing price of the Company's common stock, or the Closing Price, reaching certain price thresholds during the three-year performance period beginning March 2021 and ending February 2024, or the Performance Period, and the participant's subsequent satisfaction of a continuing service requirement of generally 90 calendar days. If, on five consecutive trading days or ten non-consecutive trading days during the Performance Period, the Closing Price equals or exceeds $120.00, $130.00 or $145.00, and the participant thereafter satisfies the continuing service requirement, then the PRSUs are deemed vested at 50%, 100% or 200%, respectively, of the participant's respective target PRSU amount. The shares may be issued following achievement of each price threshold, and the maximum number of common shares that may be issued pursuant to each PRSU grant equals 200% of the target number of PRSUs granted. As these awards contain a market condition, the Company used a Monte Carlo simulation model to estimate the grant-date fair value, which totaled $21.6 million. The grant-date fair value is recognized as compensation expense over the requisite service period of approximately 1.2 years which was derived from the Monte Carlo simulation; no compensation expense is recognized for service not provided upon separation from the Company. There is no adjustment of compensation expense recognized for service performed regardless of the number of PRSUs, if any, that ultimately vest.

Performance awards are share awards that, upon vesting, will deliver to the holder shares of the Company's common stock. The following table summarizes the Company's PRSU activity during the three months ended March 31, 2021, in thousands (except grant date fair value data):

	Number of Shares	Weighted-Average Grant Date Fair Value
Non-vested at January 1, 2021	273	$ 27.97
Granted[(1)]	410	52.68
Released	(273)	27.97
Forfeited/cancelled	(1)	52.76
Non-vested at March 31, 2021	409	$ 52.49

(1) Pursuant to the terms of the awards granted in March 2021, the actual number of awards earned could range between 0% and 200% of the above number of awards granted. The amount disclosed represents PRSU grants at maximum payout.

As of March 31, 2021, there was approximately $20.1 million of unrecognized compensation expense related to unvested PRSUs.

10. Loss Per Share

The Company calculates basic and diluted loss per share using the weighted-average number of shares of common stock outstanding during the period. Diluted net loss per share is computed by dividing the net loss by the weighted average number of common shares and common stock equivalents outstanding for the period determined using the treasury stock method. For purposes of this calculation, stock options, employee stock purchase plan rights, restricted stock units, and performance-based restricted stock units are considered to be common stock equivalents but are not included in the calculations of diluted net loss per share for periods of losses as their effect would be anti-dilutive.

Since the Company reported a loss for the three months ended March 31, 2021, and 2020, in addition to excluding potentially dilutive out-of-the money securities, the Company excluded from its calculation of loss per share all potentially dilutive in-the-money (i) stock options, (ii) RSUs, and (iii) PRSUs, and its diluted net loss per share is the same as its basic net loss per share for those periods.

The table below presents the weighted-average number of potentially dilutive securities that were excluded from the Company's calculation of diluted loss per share for the years presented, in thousands.

	Three Months Ended March 31,	
	2021	2020
Outstanding stock options	3,923	6,874
Non-vested RSUs and PRSUs	100	215
Total	4,023	7,089

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations.

General

This discussion and analysis should be read in conjunction with our financial statements and notes thereto included in this quarterly report on Form 10-Q, or Quarterly Report, and the audited consolidated financial statements and notes thereto included in our annual report on Form 10-K for the year ended December 31, 2020, or 2020 Annual Report, as filed with the Securities and Exchange Commission, or SEC. Operating results are not necessarily indicative of results that may occur in future periods.

This Quarterly Report includes forward-looking statements that involve a number of risks, uncertainties and assumptions. These forward-looking statements can generally be identified as such because the context of the statement will include words such as "may," "will," "intend," "plan," "believe," "anticipate," "expect," "estimate," "predict," "potential," "continue," "likely," or "opportunity," the negative of these words or other similar words. Similarly, statements that describe our plans, strategies, intentions, expectations, objectives, goals or prospects and other statements that are not historical facts are also forward-looking statements. For such statements, we claim the protection of the Private Securities Litigation Reform Act of 1995. Readers of this Quarterly Report are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the time this Quarterly Report was filed with the SEC. These forward-looking statements are based largely on our expectations and projections about future events and future trends affecting our business, and are subject to risks and uncertainties that could cause actual results to differ materially from those anticipated in the forward-looking statements. These risks and uncertainties include, without limitation, the risk factors identified in our SEC reports, including this Quarterly Report. In addition, past financial or operating performance is not necessarily a reliable indicator of future performance, and you should not use our historical performance to anticipate results or future period trends. We can give no assurances that any of the events anticipated by the forward-looking statements will occur or, if any of them do, what impact they will have on our results of operations and financial condition. Except as required by law, we undertake no obligation to update publicly or revise our forward-looking statements.

OVERVIEW AND RECENT DEVELOPMENTS

We are a biopharmaceutical company focused on delivering novel, transformational medicines with optimized pharmacology and pharmacokinetics to patients globally. Our internally developed pipeline includes multiple potentially first- or best-in-class assets with broad clinical utility.

Our most advanced investigational clinical programs include:

- **Etrasimod**, which we are evaluating in a Phase 3 program for ulcerative colitis, or UC, a Phase 2b/3 program for Crohn's disease, or CD, and a Phase 2 program in alopecia areata, or AA. We also plan to evaluate etrasimod in a Phase 3 program in atopic dermatitis, or AD, and a Phase 2b program for eosinophilic esophagitis, or EOE.

- **Olorinab**, which we were evaluating for a broad range of visceral pain conditions associated with gastrointestinal diseases. Topline results from the Phase 2b CAPTIVATE trial for treatment of abdominal pain associated with irritable bowel syndrome, or IBS, were released in early March and showed that although olorinab was well tolerated it did not meet the primary efficacy endpoint of the trial. We are evaluating possible strategic options for olorinab.

- **APD418**, which we are evaluating for acute heart failure, or AHF, is planning for a Phase 2 trial.

- **Temanogrel**, a second compound in our cardiovascular therapeutic area, which we expect to advance into a Phase 2 proof of mechanism study in coronary microvascular obstruction, or cMVO.

We continue to leverage our two decades of world-class G-protein-coupled receptor, or GPCR, target discovery research to develop breakthrough drugs and ultimately deliver these to patients with large unmet needs. Our long-term pipeline prospects include an enhanced collaboration with Beacon Discovery across a broad range of immune-mediated inflammatory targets and compounds.

We also have license agreements or collaborations with various companies, including:

- United Therapeutics (ralinepag in a Phase 3 program for pulmonary arterial hypertension),

- Everest Medicines Limited (etrasimod in a Phase 3 program for UC in Greater China and select countries in Asia),
- Beacon Discovery (early research platform for GPCR targets), and
- Boehringer Ingelheim International GmbH (undisclosed orphan GPCR program for central nervous system – preclinical).

Our first quarter 2021 and other recent key events include the following:

In March 2021, we reported topline results from our Phase 2B CAPTIVATE trial evaluating olorinab for the potential treatment of abdominal pain in IBS. The results showed that, although olorinab was well tolerated, it did not meet the primary efficacy endpoint of statistically significant improvement in the overall AAPS from baseline to week 12. Olorinab was generally safe and well tolerated in the study, consistent with the safety profile of previous trials. We are evaluating possible strategic options for the program.

In February 2021, we dosed the first participant in our Phase 2b VOYAGE trial of etrasimod in EoE. VOYAGE is a Phase 2b randomized, double-blind, placebo-controlled trial, with a primary efficacy measurement at week 16 and a secondary efficacy analysis at week 24, to assess the safety and efficacy of 1 mg and 2 mg etrasimod in participants with EoE.

In February 2021, we also announced that we completed full enrollment of ELEVATE UC 52, the first of two pivotal trials of 52 weeks and 12 weeks, respectively, that constitute our Phase 3 ELEVATE UC global registrational program to assess the safety and efficacy of once-daily etrasimod 2 mg in participants with moderately to severely active UC. We expect topline data from this trial in the first quarter of 2022.

In February 2020, we entered into a Sales Agreement, or the Sales Agreement, with Credit Suisse Securities (USA) LLC, SVB Leerink LLC and Cantor Fitzgerald & Co., as sales agents (collectively, the “Sales Agents”), pursuant to which we may offer and sell up to $250.0 million of shares of our common stock from time to time through the Sales Agents. Sales of shares of our common stock may be made at market prices by any method deemed to be an “at-the-market offering” as defined in Rule 415(a)(4) under the Securities Act of 1933, as amended, or Securities Act. We are not obligated to sell any shares under the Sales Agreement. Each of the Sales Agents has agreed to use its commercially reasonable efforts to sell on our behalf all of the shares of common stock requested to be sold by us, consistent with its normal trading and sales practices, on mutually agreed terms among the Sales Agents and us. During the first quarter of 2021, we sold an aggregate of 1.2 million shares under the Sales Agreement for gross proceeds of $100.6 million.

To limit the spread of COVID-19, governments have taken various actions including the issuance of stay-at-home orders and social distancing guidelines, causing some businesses to suspend operations and/or experience a reduction in demand for many products from direct or ultimate customers. Accordingly, businesses have adjusted, reduced or suspended operating activities. Beginning the week of March 16, 2020, substantially all of our workforce began working from home, either all or substantially all of the time, and continues to do so as of the date of this filing. In addition, we have experienced delays in site initiation and participant enrollment and screening rates in certain of our clinical development programs as a result of the COVID-19 pandemic. The potential impact, if any, that these site-level delays could have on our development program timelines remains uncertain. The effects of the stay-at-home orders and our work-from-home policies may negatively impact productivity, disrupt our business and delay our development programs, and may delay our regulatory and commercialization timelines, the magnitude of which will depend, in part, on the length and severity of the restrictions and other limitations on our ability to conduct our business in the ordinary course, which will in turn depend on a variety of factors including vaccination rates, which vary greatly from region to region, and the emergence and spread of new variants of the coronavirus. Our future research and development expenses and selling, general and administrative expenses may vary significantly if we experience an increased impact from COVID-19 on the costs and timing associated with the conduct of our clinical trials and other related business activities. For further information, refer to “Part II - Item 1A - Risk Factors” of this 10-Q.

RESULTS OF OPERATIONS

Three months ended March 31, 2021, and 2020

Revenues. We did not recognize revenues for the three months ended March 31, 2021, compared to revenues of $0.3 million for the three months ended March 31, 2020.

Absent any new collaborations, we expect our 2021 revenues will primarily consist of potential milestone payments from our existing collaborations and license agreements.

Revenues from milestones and royalties are difficult to predict, and our overall revenues will likely continue to vary from quarter to quarter and year to year. In the short term, we expect the amount of revenue we earn to fluctuate.

Research and development expenses.

Research and development expenses, which account for the majority of our expenses, consist primarily of salaries and other personnel costs, clinical trial costs (including payments to contract research organizations, or CROs), preclinical study fees and facility costs. We expense research and development costs as they are incurred when these expenditures have no alternative future use. We generally do not track our earlier-stage, internal research and development expenses by project; rather, we track such expenses by the type of cost incurred.

The following table summarizes research and development expenses for the periods presented (in millions, except percentages):

	Three Months Ended March 31,			
	2021	2020	$ Change	% Change
External clinical and preclinical study fees	$ 72.4	$ 51.3	$ 21.1	41.1 %
Salary and other personnel costs (excluding non-cash share-based compensation)	19.1	16.2	2.9	17.9 %
Non-cash share-based compensation	8.2	6.6	1.6	24.2 %
Facility and other costs	2.8	4.4	(1.6)	(36.4)%
Total research and development expenses	$ 102.5	$ 78.5	$ 24.0	30.6 %

The increase in external clinical and preclinical study fees was primarily due to increased expenses for the etrasimod UC program, partially offset by a decrease in olorinab program expenses. The increase in salary and other personnel costs and non-cash share-based compensation was primarily due to an increase in the number of research and development employees.

We expect to incur substantial research and development expenses in 2021 and for the aggregate amount in 2021 to be greater than the amount incurred in 2020. We expect our research and development costs to be higher primarily due to a higher number of clinical studies and associated external clinical trial costs and increasing headcount in connection with advancing our pipeline. Our actual expenses may be higher or lower than anticipated due to various factors, including our progress and results. For example, patient enrollment in our Phase 3 clinical programs for etrasimod is expected to be competitive and challenging, and could take longer than originally projected, which may result in our related external expenses being lower in 2021 than anticipated (but which might increase the overall costs for completing this multi-year program).

Included in the $72.4 million of total external clinical and preclinical study fees noted in the table above for the three months ended March 31, 2021, were the following:

- $60.5 million related to etrasimod, and
- $4.4 million related to olorinab.

Included in the $51.3 million of total external clinical and preclinical study fees noted in the table above for the three months ended March 31, 2020, were the following:

- $38.4 million related to etrasimod, and
- $8.3 million related to olorinab.

Selling, general and administrative expenses.

	Three Months Ended March 31,			
	2021	2020	$ Change	% Change
Salary and other personnel costs (excluding non-cash share-based compensation)	$ 9.9	$ 7.9	$ 2.0	25.3 %
Non-cash share-based compensation	8.8	8.6	0.2	2.3 %
Legal, accounting and other professional fees	6.5	6.4	0.1	1.6 %
Facility and other costs	4.3	3.5	0.8	22.9 %
Total selling, general and administrative expenses	$ 29.5	$ 26.4	$ 3.1	11.7 %

The increase in salary and other personnel costs (excluding non-cash share-based compensation) was primarily due to an increase in the number of selling, general and administrative employees. The increase in facility and other costs was primarily due to increased computer and equipment costs. We expect that our 2021 selling, general and administrative expenses will be higher than in 2020.

Interest and other income (expense), net. Interest and other income (expense), net increased by $9.1 million to $13.6 million for the three months ended March 31, 2021, from $4.5 million for the three months ended March 31, 2020. This increase was primarily due to a gain from a change in ownership percentage of our equity method investment of approximately $13.9 million and a $1.1 million gain from the Beacon Discovery merger with Eurofins in February 2021. The increase was partially offset by a decrease of $4.3 million in interest income from our available-for-sale investments and $1.7 million from equity in losses from our equity method investment in Longboard for the three months ended March 31, 2021.

LIQUIDITY AND CAPITAL RESOURCES

In general, developing drugs and obtaining marketing approval is a long, uncertain and expensive process, and our ability to execute on our plans and achieve our goals depends on numerous factors, many of which we do not control. To date, we have generated limited revenues. We expect to continue to incur substantial net losses for the foreseeable future as we advance our clinical development programs and support our collaborators.

We have accumulated a large deficit since inception that has primarily resulted from the significant research and development expenditures we have made in seeking to identify and develop compounds that could become marketed drugs. We expect to continue to incur substantial losses for at least the short term. To date, we have obtained cash and funded our operations primarily through the sale of common and preferred stock, the issuance of debt and related financial instruments, payments from collaborators and customers and sale leaseback transactions.

We believe our cash resources are sufficient to allow us to continue operations for at least the next 12 months from the date this Quarterly Report is filed with the SEC. There is no guarantee that adequate funds will be available when needed from additional debt or equity financing, development and commercialization partnerships or from other sources, or on terms acceptable to us. If our efforts to obtain sufficient additional funds are not successful, we would be required to delay, scale back, or eliminate some or all of our research or development, manufacturing operations, administrative operations, and clinical or regulatory activities, which could negatively affect our ability to achieve certain corporate goals.

Short term liquidity.

At March 31, 2021, we had $1.1 billion in cash and cash equivalents and available-for-sale investments. Our potential sources of liquidity in the short term include (i) milestone and other payments from collaborators, (ii) entering into new collaboration, licensing or commercial agreements for one or more of our drug candidates or programs, (iii) the lease of our facilities or sale of other assets and (iv) sale of equity, issuance of debt or other transactions.

Long term liquidity.

It will require substantial cash to achieve our objectives of discovering, developing and commercializing drugs, and this process typically takes many years and potentially several hundreds of millions of dollars for an individual drug. We may not have adequate available cash, or assets that could be readily turned into cash, to meet these objectives in the long term. We will need to obtain significant funds under our existing collaborations, under new collaboration, licensing or other commercial agreements for one or more of our drug candidates and programs or patent portfolios, or from other potential sources of liquidity, which may include the sale of equity, issuance of debt or other transactions.

Our ability to raise additional funds may be adversely impacted by potential worsening global economic conditions and potential disruptions to, and volatility in, the credit and financial markets in the United States and worldwide resulting from the ongoing COVID-19 pandemic. If we are not able to secure adequate additional funding when required, we may be forced to make reductions in spending, extend payment terms with our CROs and suppliers, liquidate assets where possible and/or suspend or curtail planned programs. Any of these actions could materially harm our business, results of operations and future prospects. To the extent we obtain additional funding through product collaborations, these arrangements would generally require us to relinquish rights to some of our product candidates or products, and we may not be able to enter into such agreements on acceptable terms, if at all.

In addition to potential payments from our current collaborators, as well as funds from public and private financial markets, potential sources of liquidity in the long term include (i) upfront, milestone, royalty and other payments from any future collaborators or licensees and (ii) revenues from sales of any drugs we obtain regulatory approval to commercialize on our own. The length of time that our current cash and cash equivalents and any available borrowings will sustain our operations is based on, among other things, the rate of adoption and commercial success of any drugs we or our collaborators obtain regulatory approval to market, regulatory decisions affecting our and our collaborator's drug candidates, prioritization decisions regarding funding for our programs, progress in our clinical and earlier-stage programs, the time and costs related to current and future clinical trials and nonclinical studies, our research, development, manufacturing and commercialization costs (including personnel costs), our progress in any programs under collaborations, costs associated with intellectual property, our capital expenditures, and costs associated with securing any in-licensing opportunities. Any significant shortfall in funding may result in us reducing our development and/or research activities, which, in turn, would affect our development pipeline and ability to obtain cash in the future.

We evaluate from time to time potential acquisitions, in-licensing and other opportunities. Any such transaction may impact our liquidity as well as affect our expenses if, for example, our operating expenses increase as a result of such acquisition or license or we use our cash to finance the acquisition or license.

Sources and uses of our cash.

Net cash used in operating activities was $120.0 million in the three months ended March 31, 2021, compared to $94.0 million in the three months ended March 31, 2020. This change was primarily the result of an increase of $19.8 million in payments made for external clinical study fees and an increase in cash expenditures of approximately $10.4 million for personnel costs resulting primarily from an increase in the number of employees.

Net cash provided by investing activities was $227.1 million in the three months ended March 31, 2021, compared to $38.9 million in the three months ended March 31, 2020. This change was primarily due to a net increase of $187.8 million in proceeds from sales and maturities of available-for-sale investments, net of purchases.

Net cash provided by financing activities was $106.4 million in the three months ended March 31, 2021, compared to $2.3 million in the three months ended March 31, 2020. This change was primarily a result of $98.4 million in net proceeds from our at-the-market offering during the first quarter of 2021 and an increase in proceeds from stock option exercises of approximately $10.9 million.

CRITICAL ACCOUNTING POLICIES AND MANAGEMENT ESTIMATES

The SEC defines critical accounting policies as those that are, in management's view, important to the portrayal of our financial condition and results of operations and demanding of management's judgment. Our discussion and analysis of financial condition and results of operations is based on our condensed consolidated financial statements, which have been prepared in accordance with US generally accepted accounting principles, or GAAP. The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses and related disclosures. We base our estimates on historical experience and on various assumptions 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. Actual results may differ significantly from those estimates.

Our critical accounting policies and management estimates are discussed in our Annual Report on Form 10-K for the fiscal year ended December 31, 2020 and there have been no material changes during the three months ended March 31, 2021.

Item 3. Quantitative and Qualitative Disclosures About Market Risk.

There have been no material changes from the information we included in this section of our Annual Report on Form 10-K for the year ended December 31, 2020.

Item 4. Controls and Procedures.

Based on an evaluation carried out as of the end of the period covered by this Quarterly Report, under the supervision and with the participation of our management, including our President and Chief Executive Officer and our Executive Vice President and Chief Financial Officer, of the effectiveness of our disclosure controls and procedures, our President and Chief Executive Officer and our Executive Vice President and Chief Financial Officer have concluded that, as of the end of such period, our disclosure controls and procedures (as defined in Rule 13a-15(e) under the Securities Exchange Act of 1934, as amended, or the Exchange Act) were effective at the reasonable assurance level. There were no changes to our internal control over financial reporting that occurred during the quarter covered by this Quarterly Report that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION

Item 1. Legal Proceedings.

We are not currently subject to any material legal proceedings.

Item 1A. Risk Factors.

RISK FACTOR SUMMARY

Below is a summary of the principal factors that make an investment in our stock speculative or risky. This summary does not address all of the risks that we face. Additional discussion of the risks summarized in this risk factor summary, and other risks that we face, can be found below under the heading "Risk Factors" and should be carefully considered, together with other information in this Quarterly Report on Form 10-Q and our other filings with the Securities and Exchange Commission, or SEC, before making investment decisions regarding our stock.

- Drug development programs are expensive, time consuming, uncertain and susceptible to change, interruption, delay or termination.
- We will need to obtain additional funds or enter into collaboration agreements to execute on our corporate strategy, and we may not be able to do so at all or on terms you view as favorable; your ownership may be substantially diluted if we do obtain additional funds; you may not agree with the manner in which we allocate our available resources; and we may not be profitable.
- Our business may be negatively impacted based on the clinical trials and preclinical studies of, and decisions affecting, one or more of our drug candidates.
- The development, approval or commercialization of any of our drug candidates could be negatively affected by circumstances related to other drug candidates or approved products.
- Topline data may not accurately reflect the complete results of a particular study or trial.
- The results of preclinical studies and completed clinical trials are not necessarily predictive of future results, and our current drug candidates or any approved drugs may not be further developed or have favorable results in later studies or trials.
- Our product candidates may cause undesirable side effects or have other properties that could delay or prevent their regulatory approval, limit the commercial profile of an approved label, or result in significant negative consequences following marketing approval, if any.
- Drug discovery and development is intensely competitive in the therapeutic areas on which we focus. If the number of our competitors increase or they develop treatments that are approved faster, marketed better, less expensive or demonstrated to be more effective or safer than our drugs or drug candidates, our commercial opportunities could be reduced or eliminated.
- Our ability to generate revenues from any of our drugs that receive regulatory approval will be subject to a variety of risks, many of which are out of our control.
- Our efforts will be seriously jeopardized if we are unable to attract and retain key and other employees.
- We rely on other companies, including third-party manufacturers and sole-source suppliers, to manufacture all our drugs and drug candidates, and we or such other companies may encounter failures or difficulties or not receive or provide adequate supply, which could adversely affect development or commercialization.
- Our business, including our preclinical and clinical programs, may be significantly and adversely affected by the Coronavirus disease 2019, or COVID-19, pandemic.
- We are subject to government regulation, contracts, and other obligations related to privacy, security, and data protection, and its actual or perceived failure to comply with such obligations could harm our business. Additionally, cyber-attacks or information security breaches that could compromise our information systems and data, or those of our third-party partners, contractors or others, could expose us to liability, affect our reputation and otherwise harm our business.
- Our success is dependent on intellectual property rights held by us and third parties and our interest in these rights is complex and uncertain.

RISK FACTORS

Investment in our stock involves a high degree of risk. You should consider carefully the risks described below, together with other information in this Quarterly Report on Form 10-Q and our other filings with the SEC, before making investment decisions regarding our stock. If any of the following events actually occur, our business, operating results, prospects or financial condition could be materially and adversely affected. This could cause the trading price of our common stock to decline and you may lose all or part of your investment. Moreover, the risks described below are not the only ones that

we face. Additional risks not presently known to us or that we currently deem immaterial may also affect our business, operating results, prospects or financial condition.

The risk factors set forth below with an asterisk (*) before the title are new risk factors or ones containing substantive changes from the risk factors previously disclosed in Item 1A to Part I of our Annual Report on Form 10-K for the year ended December 31, 2020, as filed with the SEC.

Risks Relating to Our Business

*** Drug development programs are expensive, time consuming, uncertain and susceptible to change, interruption, delay or termination.**

Drug development programs are very expensive, time consuming and difficult to design and implement. Our drug candidates are in various stages of clinical and preclinical development and are prone to the risks of failure inherent in research and development. Clinical trials and preclinical studies are needed to demonstrate that drug candidates are safe and effective to the satisfaction of the FDA, and similar non-US regulatory authorities, and the FDA or other regulatory authority may require us to, or we or others may decide to, conduct additional research and development even after a drug is approved. The commencement or completion of our clinical trials or preclinical studies could be substantially delayed or prevented by several factors, including the following:

- limited number of, and competition for, suitable participants required for enrollment in our clinical trials or animals to conduct our preclinical studies;
- limited number of, and competition for, suitable sites to conduct our clinical trials or preclinical studies;
- delay or failure to obtain a meeting, approval or agreement from the applicable regulatory authority to commence a clinical trial or approve a study protocol or change;
- supply chain issues, such as delay or failure to obtain supplies of drug candidates, drugs or other materials, with appropriate packaging and labeling, sufficient for the trial or study;
- delay or failure to reach agreement on acceptable agreement terms or protocols;
- delay or other disruption related to the COVID-19 pandemic; and
- delay or failure to obtain institutional review board, or IRB, approval to conduct a clinical trial at a prospective site.

For example, recruitment for the indications in our ongoing and planned clinical studies is competitive and challenging, and it is difficult to predict when such trials will be fully enrolled or when data will be available, if at all.

In addition, the FDA, other regulatory authorities, collaborators, or we may suspend, delay or terminate our development programs at any time for various reasons, including those listed above affecting the commencement or completion of trials and the following:

- side effects experienced by study participants or other safety issues;
- lack of effectiveness of any drug candidate during clinical trials;
- slower than expected rates of patient recruitment and enrollment or lower than expected patient retention rates;
- difficulty in maintaining contact with participants during or after treatment, which may result in incomplete data;
- inability or unwillingness of medical investigators to follow our clinical protocols;
- inadequacy of or changes in the manufacturing process or compound formulation;
- delays in obtaining regulatory approvals to commence a study, or “clinical holds,” or delays requiring suspension or termination of a study by a regulatory authority, such as the FDA, after a study is commenced;
- changes in applicable regulatory policies and regulations;
- delays in identifying and reaching agreement on acceptable terms with prospective clinical trial sites;
- uncertainty regarding proper dosing;
- unfavorable results from clinical trials or preclinical studies, including those conducted by us, our partners or our licensees;

- failure of our clinical research organizations to comply with all regulatory and contractual requirements or otherwise perform their services in a timely or acceptable manner;
- scheduling conflicts with participating clinicians and clinical institutions;
- failure to design appropriate clinical trial protocols;
- insufficient data to support regulatory approval;
- failure of participating clinicians and clinical institutions to comply with all legal, regulatory and contractual requirements or otherwise perform in a timely or acceptable manner;
- lack of sufficient funding to continue clinical trials or preclinical studies; or
- changes in business priorities or perceptions of the value of the program.

There is typically a high rate of attrition from the failure of drug candidates proceeding through clinical trials, and many companies have experienced significant setbacks in advanced development programs even after promising results were observed in earlier studies or trials. We have experienced setbacks in our internal and partnered development programs and expect to experience additional setbacks from time to time in the future. In addition, even if the earlier-stage results of our development programs are favorable, these programs may take significantly longer than expected to complete or may not be completed at all. If we or our collaborators abandon or are delayed in our development efforts related to any drug or drug candidate, we may not be able to generate sufficient revenues to continue our operations at the current or planned level or be profitable, our reputation in the industry and in the investment community would likely be significantly damaged, additional funding may not be available to us or may not be available on terms we or others believe are favorable, and our stock price may decrease significantly.

We may not be successful in initiating, enrolling participants in, or completing our studies or trials or advancing our programs on our projected timetable, if at all. Any failure to initiate or delays in our studies, trials or development programs, or unfavorable results or decisions or negative perceptions regarding any of our programs, could cause our stock price to decline significantly. This is particularly the case with respect to our clinical programs.

We will need to obtain additional funds or enter into collaboration agreements to execute on our corporate strategy, and we may not be able to do so at all or on terms you view as favorable; your ownership may be substantially diluted if we do obtain additional funds; you may not agree with the manner in which we allocate our available resources; and we may not be profitable.

It takes many years and potentially hundreds of millions of dollars to successfully develop a compound into a marketed drug. We have accumulated a large deficit that has primarily resulted from the significant expenditures we have made in research and development since our inception. We expect that our losses and operating expenses will continue to be substantial.

All of our internal programs are in the development stage, and we may not have adequate funds to develop all of our compounds into marketed drugs.

We may seek to obtain additional funding through the capital markets or other financing sources. Additional funding may not be available to us or may not be available on terms we or others believe are favorable, including due to negative impacts on the stock market and investor sentiment resulting from the COVID-19 pandemic. Our ability to obtain additional funding may depend on many factors, including those outside our control. Should we obtain additional funding, your ownership interest may be diluted or otherwise negatively impacted.

We have entered into, and may in the future seek to enter into, collaboration or other agreements with other entities to continue to develop and, if successful, commercialize one or more of our drug candidates. We may not be able to enter into any such agreements on terms that we or third parties, including investors or analysts, view as favorable, if at all. Our ability to enter into any such agreement for any of our programs or drug candidates depends on many factors, potentially including the outcomes of additional testing (including clinical trial results) or regulatory applications for marketing approval, and we do not control these outcomes.

We may allocate our resources in ways that do not improve our results of operations or enhance the value of our assets, and our stockholders and others may also not agree with the manner in which we choose to allocate our resources or obtain additional funding. We may also eliminate, scale back, or delay some or all of our research and development programs, and any such reductions or failure to apply our resources effectively or to obtain additional funding could narrow, slow, or otherwise

adversely impact the development and commercialization of one or more of our drug candidates, which could reduce our opportunities for success and have a material adverse effect on our business, our prospects, and the market price of our common stock.

In addition, we cannot assure you that we will be profitable or, if we are profitable for any particular time period, that we will be profitable in the future.

Our business may be negatively impacted based on the clinical trials and preclinical studies of, and decisions affecting, one or more of our drug candidates.

The results and timing of clinical trials and preclinical studies obtained by us or our collaborators or licensees, as well as related decisions by us, collaborators, licensees, and regulators, can affect our stock price. Results of clinical trials and preclinical studies are uncertain and subject to different interpretations by regulatory agencies, us, or others. The design of these trials and studies (which may change significantly and be more expensive than anticipated depending on results and regulatory decisions), as well as related analyses of such results, including adverse effects, may not be viewed favorably by us or third parties, including investors, analysts, current or potential collaborators, the academic and medical communities, and regulators, which could adversely impact the development and opportunities for regulatory approval of drug candidates and commercialization (and even result in withdrawal from the market) of approved drugs. The same may be true of decisions regarding the focus and prioritization of our research and development efforts. Stock prices of companies in our industry have declined significantly when such results and decisions were unfavorable or perceived negatively or when a drug candidate or product did not otherwise meet expectations.

The development, approval or commercialization of any of our drug candidates could be negatively affected by circumstances related to other drug candidates or approved products.

Information on our drug candidates in clinical development is preliminary and incomplete, and for such drug candidates, particularly in the earlier stages of development, information on approved products in the same or related drug classes may indicate potential risks related to the development of our drug candidates. In particular, safety issues affecting other drugs or drug candidates may result in increased regulatory scrutiny of the safety of our drugs or drug candidates, may raise potential adverse publicity, and may affect product sales or result in litigation.

For example, etrasimod is an orally available modulator of the S1P receptors. Other orally available modulators of the S1P receptors, such as GILENYA, have been associated with risks such as adverse cardiovascular effects, including lowering of the heart rate and heart blocks, infection, macular edema, respiratory effects, fetal risk, a rare brain infection, and elevations in liver enzymes. These adverse reactions and risks may be associated with S1P receptor modulation and could be found to be associated with the use of etrasimod. Such adverse reactions and risks, either actual or perceived, could negatively impact the development, approval, or commercialization of etrasimod, or our ability to enter into a collaboration on acceptable terms.

Topline data may not accurately reflect the complete results of a particular study or trial.

We may publicly disclose topline or interim data from time to time, which are based on preliminary analyses of then-available efficacy and safety 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 others, including regulatory agencies, may not accept or agree with our assumptions, estimations, 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 drug candidate or drug, and our company in general. In addition, the information we may publicly disclose regarding a particular study or clinical trial is based on what is typically extensive information, and you, regulators, 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 drug, drug candidate or our business.

*** Our hypothesis that selectively targeting receptors can lead to more efficacious or safer drugs may not be correct.**

In general, we have designed and optimized the drug candidates that we or our collaborators and licensees are developing (including etrasimod, olorinab, APD418 and ralinepag) to selectively target certain receptors found on cells in

humans. Our hypothesis is that selectivity may allow our drug candidates to address diseases more efficaciously or without some of the negative effects associated with less selective drugs. In certain cases, we believe early research and, if available, early clinical testing, provides preliminary support for our hypothesis. However, our hypothesis may not be correct, early research and early phase clinical testing may not be predictive of efficacy or safety in later trials, and our drug candidates may not be approved or, if approved, have the desired efficacy or safety profile. For example, our Phase 2b trial of olorinab for IBS failed to meet its primary endpoint.

It is generally our strategy to develop drug candidates that we believe will be first-in-class, best-in-class, or similar descriptions, or otherwise have broad clinical utility, optimized pharmacology, or optimized pharmacokinetics. Some or all of our drug candidates may not achieve these goals. For example, failure to complete enrollment in clinical trials on schedule or at all could prevent a drug candidate from being first-in-class. Similarly, comparing data from different trials, or making predictions based on preclinical data, may not allow us to correctly determine whether our drug candidates are superior to competitive drugs or drug candidates in the same way that comparisons can be made from conducting trials in which our and a competitive drug is tested "head to head" in the same trial. The failure of our drugs or drug candidates to be first-in-class, best-in-class, or similar descriptions, or have broad clinical utility, optimized pharmacology, or optimized pharmacokinetics, or a lack of "head to head" data, could adversely affect development, regulatory approval, third-party payor support, or market adoption, which could have a material adverse impact on our business.

*** The results of preclinical studies and completed clinical trials are not necessarily predictive of future results, and our current drug candidates or any approved drugs may not be further developed or have favorable results in later studies or trials.**

Preclinical studies and Phase 1 and Phase 2 clinical trials are not primarily designed to test the efficacy of a drug candidate, but rather to establish potential mechanisms of action, test safety, study pharmacokinetics and pharmacodynamics, and understand the drug candidate's side effects at various doses, schedules, or routes of administration. Favorable results in early studies or trials may not be confirmed in later studies or trials, including preclinical studies that continue or that are initiated after earlier clinical trials and large-scale clinical trials, and our drug candidates or drugs in subsequent trials or studies may fail to show desired safety and efficacy despite having progressed through earlier-stage trials. For example, we have announced positive topline Phase 2 results for etrasimod in participants with ulcerative colitis, but these results may not be confirmed in any subsequent Phase 3 study. By way of another example, the impact of etrasimod on heart rate that was observed in completed clinical trials may be observed in subsequent trials, and it could be viewed negatively by the FDA or other regulatory agencies.

Unfavorable results from clinical trials or preclinical studies could result in delays, modifications, or abandonment of ongoing or future clinical trials, or abandonment of a program. Clinical and preclinical results are frequently susceptible to varying interpretations that may delay, limit, or prevent regulatory approvals or commercialization. Negative or inconclusive results or adverse medical events during such trials or studies could cause a clinical trial to be delayed, repeated, or terminated; a program to be abandoned; or negatively impact a related marketed drug, which could have a material adverse effect on our business, financial condition, and results of operations.

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

Undesirable side effects caused by our product candidates could cause us or regulatory authorities to interrupt, delay, or halt clinical trials and could result in a more restrictive label or the delay or denial of regulatory approval by the FDA, EMA, or other comparable foreign authorities. Results of our trials could reveal a high and unacceptable severity and prevalence of these or other side effects. In such an event, our trials could be suspended or terminated, and the FDA, EMA, or comparable foreign regulatory authorities could order us to cease further development of or deny approval of our product candidates for any or all targeted indications. The drug-related side effects could affect patient recruitment or the ability of enrolled participants to complete the trial or result in potential product liability claims. Any of these occurrences may harm our business, financial condition, and prospects significantly.

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

- regulatory authorities may withdraw approvals of such product;

- regulatory authorities may require additional warnings on the label;
- we may be required to create a medication guide outlining the risks of such side effects for distribution to patients;
- we could be sued and held liable for harm caused to patients; and
- our reputation may suffer.

For example, in February 2020 the FDA issued a drug safety communication announcing that it requested Eisai voluntarily withdraw lorcaserin (previously marketed in the United States as BELVIQ and BELVIQ XR) from the U.S. market based on the FDA's analysis of data from a study completed by Eisai and a change in the FDA's risk-benefit assessment of BELVIQ. Eisai agreed to voluntarily withdraw lorcaserin products from the U.S. market, as requested by the FDA, and from foreign markets. Following these events, lawsuits relating to lorcaserin against us and others have been filed in the United States and abroad.

Any of these events could prevent us from achieving or maintaining market acceptance of the particular product candidate, if approved, and could significantly harm our business, results of operations and prospects.

Drug discovery and development is intensely competitive in the therapeutic areas on which we focus. If the number of our competitors increase or they develop treatments that are approved faster, marketed better, less expensive, or demonstrated to be more effective or safer than our drugs or drug candidates, our commercial opportunities could be reduced or eliminated.

Many of the drugs we or our collaborators are attempting or may attempt to discover and develop may compete with existing therapies in the United States and other territories. In addition, many companies are pursuing the development of new drugs that target the same diseases and conditions that we target. For example, with regard to etrasimod, there are other drugs that have a similar mechanism of action that entered Phase 3 clinical development before etrasimod for the same indications that we are pursuing, such as ulcerative colitis.

Our competitors, particularly large pharmaceutical companies, may have substantially greater research, development, marketing, and sales capabilities and greater financial, scientific, and human resources than we do. Companies that complete clinical trials, obtain required regulatory agency approvals, and commence commercial sale of their drugs before we do for the same indication may achieve a significant competitive advantage, including certain patent and marketing exclusivity rights. In addition, our competitors' drugs may have fewer side effects, more desirable characteristics (such as efficacy, route of administration, or frequency of dosing), or be viewed more favorably by patients, healthcare providers, healthcare payers, the medical community, the media, or others than our drug candidates or drugs, if any, for the same indication. Our competitors may also market generic or other drugs that compete with our drugs at a lower price than our drugs, which may negatively impact our drug sales, if any. Any results from our research and development efforts, or from our joint efforts with our existing or any future collaborators, may not compete successfully with existing or newly discovered products or therapies.

Our revenues in the future will be substantially dependent on the success of our or our collaborators' and licensees' marketing of drugs we have discovered or developed. To the extent such drugs are not commercially successful, our business, financial condition, and results of operations may be materially adversely affected, and the price of our common stock may decline.

We believe our revenues will be substantially dependent on the success of the drugs we or our collaborators and licensees successfully develop. We do not know whether or when such drug candidates will be approved by regulatory authorities for sale or commercialized. Even if approved and commercialization begins, we do not know if such commercialization will be successful or otherwise meet our, your, analysts', or others' expectations, and the market price of our common stock could decline significantly. For example, sales of lorcaserin to date have been less than we and others initially anticipated, and, in February 2020, Eisai (as well as its distributor in South Korea) determined to withdraw lorcaserin (previously marketed in the United States as BELVIQ and BELVIQ XR) from the market based on concerns raised by the FDA.

We cannot guarantee future product sales or achievement of milestones under our collaborations and license agreements. For example, our license agreement with United Therapeutics for ralinepag does not contain a covenant obligating United Therapeutics to use any particular efforts to develop or commercialize any product, and we may never receive any milestone or royalty payments under this license agreement. In addition, our collaboration and license agreements may be

terminated in certain circumstances, which may result in us not receiving additional milestone or other payments under the terminated agreement.

The degree of market acceptance and commercial success of a drug will depend on a number of factors, including the following, as well as risks identified in other risk factors:

- the number of patients treated with the drug and their results;
- market acceptance and use of the drug, which may depend on the public's awareness and view of the drug, economic changes, national and world events, potentially seasonal and other fluctuations in demand, the timing and impact of current or new competition, and the drug's perceived advantages or disadvantages over alternative treatments (including relative convenience, ease of administration, and prevalence and severity of any adverse events, including any unexpected adverse events);
- the actual and perceived safety and efficacy of the drug on both a short- and long-term basis among actual or potential patients, healthcare providers and others in the medical community, regulatory agencies, and insurers and other payers, including related decisions by any such entity or individual;
- incidence and severity of any side effects, including as a result of off-label use or in combination with one or more drugs;
- new data relating to the drug, including as a result of additional studies, trials, or analyses of the drug or related drugs or drug candidates, whether conducted by us or by others;
- physicians' awareness of the drug, and the willingness of physicians to prescribe and of patients to use the drug;
- the claims, limitations, warnings, and other information in the drug's current or future labeling;
- any current or future scheduling designation for the drug by the U.S. Drug Enforcement Administration, or DEA, or any comparable foreign authorities;
- our or our collaborators' maintenance of an effective sales force, marketing team, strategy, program, medical affairs group, and related functions, as well as our or our collaborators' sales, marketing, and other representatives accurately describing the drug consistent with its approved labeling;
- the price and perceived cost-effectiveness of the drug, including as compared to possible alternatives;
- the ability of patients and physicians and other providers to obtain and maintain coverage and adequate reimbursement, if any, by third-party payers, including government payers;
- the ability and desire of group purchasing organizations, or GPOs, including distributors and other network providers, to sell the drug to their constituencies;
- introduction of counterfeit or unauthorized versions of the drug;
- to the extent the drug is approved and marketed in a jurisdiction with a significantly lower price than in another jurisdiction, the impact of the lower pricing in the higher-priced territory, including on the pricing of reimbursement, if available, and by the diversion of lower-priced of the drug into the higher-priced territory; and
- the availability of adequate commercial manufacturing and supply chain for the drug.

*** Our drugs may not be commercially successful if not widely covered and adequately reimbursed by third-party payers, and we may depend on others to obtain and maintain third-party payer access; inadequate third-party coverage and reimbursement could make entering into agreements with pharmaceutical companies to collaborate or commercialize our drugs more difficult and diminish our revenues.**

Our and our collaborators' and licensee's ability to successfully commercialize any of our drugs that have been or may be approved will depend, in part, on government regulation and the availability of coverage and adequate reimbursement from third-party payers, including private health insurers and government payers, such as the Medicaid and Medicare programs, increases in government-run, single-payer health insurance plans, and compulsory licenses of drugs. We expect government and third-party payers will continue their efforts to contain healthcare costs by limiting coverage and reimbursement levels for new drugs. In addition, many countries outside of the U.S. have nationalized healthcare systems in which the government pays for all such products and services and must approve product pricing, and some U.S. politicians advocate for implementation of a

comparable system in the United States. A government or third-party payer decision not to approve pricing, or provide adequate coverage and reimbursements, for our drugs, if any, could limit market acceptance of and demand for our drugs.

It is increasingly difficult to obtain coverage and adequate reimbursement levels from third-party payers, and significant uncertainty exists as to the coverage and reimbursement of newly approved prescription drug products. We or our collaborators also face competition in negotiating for coverage from pharmaceutical companies and others with competitive drugs or other treatment, and these competitors may have significantly more negotiating leverage or success with respect to individual payers than we or our collaborators may have.

Federal and state healthcare reform measures that have been or may be implemented in the future may result in more rigorous coverage criteria, more limited coverage and downward pressure on the price that we may receive for any approved product, which could seriously decrease our future revenues. The Patient Protection and Affordable Care Act, as amended, or the ACA, which was enacted in 2010, is one such healthcare reform measure that has made a number of substantial changes in the way healthcare is financed by both governmental and private insurers. In the years since its enactment, there have been, and continue to be, significant developments in, and continued legislative, executive, and judicial activity around, attempts to repeal, replace, or modify the ACA. While Congress has not passed comprehensive repeal legislation, several bills affecting the implementation of certain taxes under the ACA have been signed into law. Legislation enacted in 2017, informally titled the Tax Cuts and Jobs Act of 2017, or TCJA, includes a provision repealing, effective January 1, 2019, the tax-based shared responsibility payment imposed by the ACA on certain individuals who fail to maintain qualifying health coverage for all or part of a year that is commonly referred to as the “individual mandate”. Additionally, the 2020 federal spending package permanently eliminated, effective January 1, 2020, the ACA-mandated “Cadillac” tax on high-cost employer-sponsored health coverage and medical device tax and, effective January 1, 2021, also eliminated the health insurer tax. Further, the Bipartisan Budget Act of 2018, or the BBA, among other things, amended the ACA, effective January 1, 2019, to increase from 50 percent to 70 percent the point-of-sale discount that is owed by pharmaceutical manufacturers who participate in Medicare Part D and to close the coverage gap in most Medicare drug plans, commonly referred to as the “donut hole”. 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 the TCJA. On December 18, 2019, the U.S. Court of Appeals for the Fifth 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 currently reviewing this case, but it is unknown when a decision will be made. Further, on February 10, 2021, the Biden administration withdrew the federal government’s support for overturning the ACA. Although the U.S. Supreme Court has not yet ruled on the constitutionality of the ACA, on January 28, 2021, President Biden issued an executive order to initiate a special enrollment period for purposes of obtaining health insurance coverage through the ACA marketplace, which began on February 15, 2021 and will remain open through August 15, 2021. The executive order also instructs certain governmental agencies to review and reconsider their existing policies and rules that limit access to healthcare, including among others, reexamining Medicaid demonstration projects and waiver programs that include work requirements, and policies that create unnecessary barriers to obtaining access to health insurance coverage through Medicaid or the ACA. It is unclear how the Supreme Court ruling, other such litigation, and the healthcare reform measures of the Biden administration will impact the ACA and our business and operations.

In addition, there has been heightened scrutiny in the United States and other countries of pharmaceutical pricing practices in light of the rising cost of prescription drugs and biologics. In the United States, such scrutiny has resulted in 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 drugs. At the federal level, the Trump administration used several means to propose or implement drug pricing reform, including through federal budget proposals, executive orders and policy initiatives. For example, on July 24, 2020 and September 13, 2020, President Trump announced several executive orders related to prescription drug pricing that attempted implement several of the administration's proposals. As a result, the FDA released a final rule on September 24, 2020, effective November 30, 2020, providing guidance for states to build and submit importation plans for drugs from Canada. Further, on November 20, 2020, the U.S. Department of Health and Human Services, or HHS, finalized a regulation removing safe harbor protection for price reductions from pharmaceutical manufacturers to plan sponsors under Part D, either directly or through pharmacy benefit managers, unless the price reduction is required by law. The implementation of the rule has been delayed by the Biden administration from January 1, 2022 to January 1, 2023 due to ongoing litigation. The rule also creates a new safe harbor for price reductions reflected at the point-of-sale, as well as a safe harbor for certain fixed fee arrangements between pharmacy benefit managers and manufacturers, the implementation of which have also been delayed by the Biden administration until January 1, 2023. On November 20, 2020, the Centers for Medicare and Medicaid Services, or CMS, issued an interim final rule implementing President Trump's Most Favored Nation executive order, which would tie Medicare Part B payments for certain physician-administered drugs to the lowest price paid in other economically advanced countries. The Most Favored Nation regulations mandate participation by identified Medicare Part B providers and will apply in all U.S. states and territories for a seven-year period beginning January 1, 2021, and ending December 31, 2027. On December 28, 2020, the United States District Court in Northern California issued a nationwide preliminary injunction against implementation of the interim final rule. It is unclear whether the Biden administration will work to reverse these measures or pursue similar policy initiatives. At the state level, legislatures have increasingly passed legislation and implemented regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing. It is possible that additional governmental action is taken in response to the COVID-19 pandemic. For example, the CARES Act and other COVID-19 relief legislation suspended the 2% Medicare rate reduction sequester from May 1, 2020 through December 31, 2021.

Any reduction in reimbursement from Medicare or other government programs may result in a similar reduction in payments from private payors. The implementation of additional cost containment measures or other healthcare reforms may also limit our commercial opportunities by reducing the amount a potential collaborator or licensee is willing to pay to license our programs or drug candidates in the future, which may prevent us from being able to establish and maintain collaborations and license agreements, generate revenue, attain profitability, or commercialize our products.

In the European Union, similar political, economic and regulatory developments may affect our ability to profitably commercialize our product candidates, if approved. In addition to continuing pressure on prices and cost containment measures, legislative developments at the European Union or member state level may result in significant additional requirements or obstacles that may increase our operating costs. The delivery of healthcare in the European Union, including the establishment and operation of health services and the pricing and reimbursement of medicines, is almost exclusively a matter for national, rather than European Union, law and policy. National governments and health service providers have different priorities and approaches to the delivery of healthcare and the pricing and reimbursement of products in that context. In general, however, the healthcare budgetary constraints in most European Union member states have resulted in restrictions on the pricing and reimbursement of medicines by relevant health service providers. Coupled with ever-increasing European Union and national regulatory burdens on those wishing to develop and market products, this could prevent or delay marketing approval of our product candidates, restrict or regulate post-approval activities and affect our ability to commercialize our product candidates, if approved.

In markets outside of the United States and the European Union, reimbursement and healthcare payment systems vary significantly by country, and many countries have instituted price ceilings on specific products and therapies.

Certain Governments outside of the United States impose strict price controls, which may adversely affect our revenues, if any.

In some countries, particularly the countries of the European Union, the pricing of prescription pharmaceuticals is subject to governmental control. In these countries, pricing negotiations with governmental authorities can take considerable time after the receipt of marketing approval for a product. To obtain reimbursement or pricing approval in some countries, we may be required to conduct a clinical trial that compares the cost-effectiveness of our product candidate to other available therapies. If reimbursement of our products is unavailable or limited in scope or amount, or if pricing is set at unsatisfactory levels, our business could be harmed, possibly materially.

Forecasting potential sales for drugs will be difficult, and if our projections are inaccurate, our business and stock price may be adversely affected.

Our business planning requires us to forecast or make assumptions regarding demand and revenues for our drugs if they are approved despite numerous uncertainties. These uncertainties may be increased if we rely on our collaborators to conduct commercial activities and provide us with accurate and timely information. Actual results may deviate materially from projected results for various reasons, including the following, as well as risks identified in other risk factors:

- the rate of adoption in the particular market, including fluctuations in demand for various reasons, such as fluctuations related to economic changes, national and world events, holidays, and seasonal changes;
- pricing (including discounting or other promotions), reimbursement, product returns or recalls, competition, labeling, DEA scheduling, adverse events, and other items that impact commercialization;
- lack of patient and physician familiarity with the drug;
- lack of patient use and physician prescribing history;
- lack of commercialization experience with the drug;
- actual sales to patients may significantly differ from expectations based on sales to wholesalers;
- uncertainty relating to when the drug may become commercially available to patients and rate of adoption in other territories; and
- other changes in regulatory or commercial conditions.

Revenues from drug sales may be based in part on estimates, judgment, and accounting policies, and incorrect estimates or regulators' or others' disagreement regarding such estimates or accounting policies may result in changes to guidance, projections, or previously reported results. Expected and actual product sales and quarterly and other results may greatly fluctuate, and such fluctuations can adversely affect the market price of our common stock, perceptions of our ability to forecast demand and revenues, and our ability to maintain and fund our operations.

Our efforts will be seriously jeopardized if we are unable to attract and retain key and other employees.

Our success depends on the continued contributions of our principal management, development, and scientific personnel and the ability to hire and retain key and other personnel. We face competition for such personnel, and we believe that risks and uncertainties related to our business may impact our ability to hire and retain key and other personnel. If we do not recruit and retain effective management and other key employees, particularly our executive officers, our operations, our ability to generate or raise additional capital, and our business in general, may be adversely impacted. For example, to execute our clinical programs, our strategy is to maintain a sufficient and robust program management function with clinical expertise. We are in the process of modifying and building this function, and we may not be able to establish the function we believe necessary to support our clinical goals and meet our corporate objectives.

We are expanding our organization and may experience difficulties in managing this growth, which could disrupt our operations.

Although we reduced our recruiting and hiring activities in light of the ongoing COVID-19 pandemic, as part of our long-term business plan, we are seeking to expand our employee base to increase our managerial, scientific, operational, manufacturing supply, commercial, financial and other resources and to hire more consultants and contractors, including in and outside of our office locations. Future growth will impose significant additional responsibilities on our management, including the need to identify, recruit, maintain, motivate and integrate additional employees, consultants and contractors. Also, our management may need to divert attention away from our day-to-day activities and devote a substantial amount of 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, give rise to operational mistakes, loss of business opportunities, loss of employees, and reduced productivity among remaining employees. Our future growth could require significant capital expenditures and may divert financial resources from other projects, such as the development of additional product candidates. Moreover, if our management is unable to effectively manage our growth, our expenses may increase more than expected, our ability to generate and/or grow revenues could be reduced, and we may not be able to implement our business strategy. Our future financial performance and our ability to develop and then commercialize any approved products and compete effectively will depend, in part, on our ability to effectively manage any future growth.

*** Data generated or analyzed with respect to product use in the market or required postmarketing or other studies or trials may result in decreased demand, lower sales, product recall, regulatory action, or litigation.**

An NDA holder (or the equivalent outside the United States) is responsible for assessing and monitoring the safety of a drug that has been approved for marketing, including reviewing reports of adverse safety events. In addition, NDA holders often conduct additional studies or trials or analyze new or previous data related to an approved drug, including with respect to required postmarketing studies and in connection with seeking additional regulatory approvals in new territories.

Any new data generated, including from adverse event reports or required postmarketing, registration, or other studies or trials, may result in label changes, adversely affect sales or development, result in withdrawal of the drug from the market, or result in litigation. In addition, analyses of previous data can have similar risks. Regulatory agencies may consider the new data or analyses in reviewing marketing applications for drug candidates in their territories or impose post-approval requirements that require significant additional expenditures. For example, in February 2020, the FDA requested that Eisai withdraw lorcaserin (previously marketed in the United States as BELVIQ and BELVIQ XR) from the U.S. market based on the FDA's analysis of data from a study completed by Eisai and a change in the FDA's risk-benefit assessment of BELVIQ, and regulators in other countries have taken similar steps. Eisai agreed to voluntarily withdraw lorcaserin products from the U.S. market, as requested by the FDA, and from foreign markets. Following these events, lawsuits relating to lorcaserin against us and others have been filed in the United States and abroad. While these lawsuits remain in preliminary stages and we are actively disputing the allegations contained therein, to the extent they proceed, and the claims they allege are found to have merit and an adverse judgment ensues, the lawsuits may have a material adverse effect on our business or financial condition.

The discovery of significant problems with a product or class of products similar to any approved drug could have an adverse effect on our or our collaborator's or licensee's commercialization.

If we license or otherwise partner our drugs, our failure to maintain such agreements or poor performance or results under such agreements could negatively impact our business.

Our collaborators and licensees may have primary responsibility for the regulatory approval, marketing and distribution, and, in certain circumstances, development, of our drug candidate(s) in the territory or territories under the applicable collaboration. We may have limited or no control over our collaborator's decisions, including the amount and timing of resources that any of these collaborators will dedicate to such activities. This is the case for our ralinepag exclusive license agreement with United Therapeutics and our lorcaserin Transaction Agreement with Eisai.

When we enter collaboration and license agreements, we are subject to a number of other risks, including:

- our collaborators and licensees may not comply with applicable laws or regulatory guidelines, which could adversely impact the development or commercialization of the drug or drug candidate;
- there could be disagreements regarding the agreements or the study or development that delay or terminate the commercialization, research, study, or development, delay or eliminate potential payments under the agreements or increase our costs under or outside of the agreements;

- our collaborators and licensees may not effectively allocate adequate resources, may have limited experience in a particular territory, or may generate unfavorable data or results; and
- our collaborators and licensees may not perform as expected, including with regard to making any required payments, and the agreements may not provide adequate protection or may not be effectively enforced.

We or our collaborators or licensees might terminate our agreements in certain circumstances or amend the terms of our agreement, and investors and analysts may not view any termination or amendment as favorable.

We rely on other companies, including third-party manufacturers and sole-source suppliers, to manufacture all our drugs and drug candidates, and we or such other companies may encounter failures or difficulties or not receive or provide adequate supply, which could adversely affect development or commercialization.

We do not own or operate manufacturing facilities that can produce active pharmaceutical ingredient, or API, intermediates and other material required to make our drug candidates. Instead, we rely on other companies to supply API, intermediates and other materials. Certain of these materials are available from only one or a small number of suppliers, and using a new supplier, if available, could result in substantial delay and greater cost. Our and our manufacturers' dependence on single or limited sources of materials may adversely affect our ability to develop and deliver drug products on a timely and competitive basis, or at all.

Any performance failure on the part of us or a third-party manufacturer could result in a product recall or seizure or a delay or other adverse effect on sales of an approved product or the clinical development or regulatory approval of one or more of our other drug candidates. We or third-party manufacturers may encounter difficulties involving production yields, regulatory compliance, lot release, quality control, and quality assurance, as well as shortages of qualified personnel.

The ability to adequately and timely manufacture and supply drug product is dependent on the uninterrupted and efficient operation of the manufacturing facilities, which is impacted by many manufacturing variables, including:

- availability or contamination of raw materials and components used in the manufacturing process, particularly those for which we have no other source or supplier;
- ability to accommodate changes in dosage or formulation;
- capacity of our facilities or those of our contract manufacturers;
- having the ability to adjust to changes in actual or anticipated use of the facility, including with respect to having sufficient capacity and a sufficient number of qualified personnel;
- facility contamination by microorganisms or viruses or cross contamination;
- compliance with regulatory requirements, including inspectional notices of violation and warning letters;
- maintenance and renewal of any required licenses or certifications;
- changes in actual or forecasted demand;
- timing and number of production runs;
- production success rates and bulk drug yields; and
- timing and outcome of product quality testing.

In addition, we or our third-party manufacturers may encounter delays and problems in manufacturing our drug candidates or drugs for a variety of reasons, including accidents during operation, failure of equipment, delays in receiving materials, natural or other disasters, health epidemics (including COVID-19), political or governmental unrest or changes, social unrest, intentional misconduct, or other factors inherent in operating complex manufacturing facilities. Commercially available starting materials, reagents and excipients may be or become scarce or more expensive to procure, and we may not be able to obtain favorable terms in agreements with subcontractors. We or our third-party manufacturers may not be able to operate our respective manufacturing facilities in a cost-effective manner or in a time frame that is consistent with our expected future manufacturing needs. If we or our third-party manufacturers cease or interrupt production or if our third-party manufacturers and other service providers fail to supply materials, products, or services to us for any reason, such interruption could delay progress on our programs, or interrupt the commercial supply of drug products, with the potential for additional costs and lost revenues. If this were to occur, we may also need to seek alternative means to fulfill our manufacturing needs.

We may not be able to enter into or maintain agreements with manufacturers whose facilities and procedures comply with applicable law. Manufacturers are subject to ongoing periodic inspection (which may be unannounced) by the FDA, the DEA, corresponding state and foreign authorities and other regulatory authorities to ensure strict compliance with Current Good Manufacturing Practices, or cGMPs, regulations, and other applicable government regulations and corresponding foreign standards. We do not have control over a third-party manufacturer's compliance with these regulations and standards. If we or one of our manufacturers or other company in the supply chain fail to maintain compliance or otherwise experience setbacks, we or they could be subject to civil or criminal penalties, the production of one or more of our drug candidates or any approved products could be interrupted or suspended, or our product could be recalled or withdrawn, resulting in delays, additional costs, and potentially lost revenues.

*** Our drug candidates are subject to extensive regulation, and we may not receive required regulatory approvals, or timely approvals, for any of our drug candidates.**

Preclinical and clinical development, manufacturing, labeling, packaging, storage, recordkeeping, advertising, promotion, export, marketing and distribution, and other activities relating to developing and manufacturing drugs are subject to extensive regulation by the FDA, EMA, and other regulatory agencies. We and others we contract with are subject to periodic inspections (which may be unannounced) by the FDA, DEA, EMA, and other regulatory agencies. Failure to comply with applicable regulatory requirements may, either before or after product approval, subject us to administrative or judicially imposed sanctions that may negatively impact research and development or commercialization, or otherwise negatively impact our business. Regulatory agencies have in the past inspected certain aspects of our business, and we were provided with observations of objectionable conditions or practices with respect to our business. There is no assurance that regulatory agencies will not provide us with observations in future inspections or that we satisfactorily addressed observations provided to us in past inspections.

Regulatory approval of a drug candidate is not guaranteed, and our business and reputation may be harmed by any failure or significant delay in receiving regulatory approval. The number and types of preclinical studies and clinical trials that will be required for FDA approval varies depending on the drug candidate, the disease or condition that the drug candidate is designed to target and the regulations applicable to any particular drug candidate. Despite the time and expense exerted in preclinical and clinical studies, failure can occur at any stage, and we could encounter problems that cause us to abandon clinical trials or to repeat or perform additional preclinical studies and clinical trials.

We cannot predict when or whether, or assure you that, our collaborators' or our past or any future regulatory submissions or responses will be sufficient to the applicable regulatory authority or others, that the applicable regulatory authority or others will consider data or our analyses, interpretations or procedures related to any of our drug candidates as sufficient or persuasive, or that any regulatory authority will ever approve any of our drug candidates in the future.

To market any drugs outside of the United States, we and our current or future collaborators must comply with numerous and varying regulatory requirements of other countries. Approval procedures vary among countries and can involve additional product testing and additional administrative review periods. The time required to obtain approval in other countries might differ from that required to obtain FDA approval. The regulatory approval process in other countries may include all of the risks associated with FDA approval as well as additional risks, some of which may be unanticipated. In addition, in many countries outside the United States, it is required that the product be approved for reimbursement before the product can be approved for sale in that country. We or these third parties may not obtain approvals from regulatory authorities outside the United States on a timely basis, if at all. Approval by the FDA or any other regulatory authority does not assure or predict with any certainty that any other regulatory authority will approve the drug. The failure to obtain approval in one jurisdiction may negatively impact our ability to obtain approval elsewhere. We may not be able to file for marketing approvals and may not receive necessary approvals to commercialize our products in any jurisdiction, which could materially impair our ability to generate revenue. In addition, existing regulatory policies and laws may change. We cannot predict the likelihood, nature, or extent of new government regulation, either in the United States or in other countries, or the impact on our drug candidates or drugs. For example, new FDA regulation could delay or prevent marketing approvals, increase the cost of research and development, and result in narrower product labeling and expensive post-marketing requirements.

*** Fast Track, Breakthrough Therapy, Accelerated Approval, Priority Review, or similar designations by the FDA or other applicable regulatory agencies may not lead to a faster development or review process.**

The FDA may grant Fast Track, Breakthrough Therapy, Accelerated Approval, Priority Review, or other designations to product candidates that meet applicable guidelines in order to speed the availability of certain drugs. Other applicable regulatory agencies may grant similar designations. These designations may apply only to the combination of a product candidate and a specific indication or patient population. Product candidates that receive these designations may not actually

receive faster clinical development or regulatory review or approval any sooner than other product candidates that do not have such designation, or at all. Furthermore, a product's receipt of such a designation does not increase the likelihood that the product candidate will receive marketing approval. The FDA or other regulatory agency may also withdraw a designation if it determines that the product candidate no longer meets the relevant criteria.

For example, the FDA has granted Fast Track designation for APD418 for treatment of decompensated heart failure, or DHF, which we refer to as acute heart failure, or AHF, in patients who have heart failure with reduced ejection fraction and for temanogrel for improvement of cardiovascular outcomes and myocardial recovery by the prevention and treatment of microvascular obstruction in patients undergoing percutaneous coronary intervention. Despite receiving these Fast Track designations, such designations may be withdrawn in the future, and in any event APD418 and temanogrel may not actually receive faster clinical development or regulatory review or approval any sooner than other product candidates that do not have such designation, or at all.

Our activities and drugs will still be subject to extensive postmarketing regulation if approved.

Following regulatory approval of any of our drug candidates, we and our collaborators will be subject to ongoing obligations and continued regulatory review from the FDA, EMA, and other applicable regulatory agencies, such as continued adverse event reporting requirements. There may also be additional postmarketing obligations imposed by the FDA, EMA, or other regulatory agencies. These obligations may result in significant expense and limit the ability to commercialize such drugs.

The FDA, EMA, or other regulatory agencies may also require that the sponsor of the NDA or foreign equivalent, as applicable, conduct additional clinical trials to further assess approved drugs after approval under a post-approval commitment. Such additional studies may be costly and may impact the commercialization of the drug. Unfavorable trial results from postmarketing studies could negatively impact market acceptance of the drug, limit the revenues we generate from sales, result in the drug's withdrawal from the market, negatively impact the potential approval of the drug in other territories, and result in litigation.

The FDA, EMA, or other regulatory agencies may also impose significant restrictions on the indicated uses for which a drug may be marketed. Additionally, the FDA may require a Risk Evaluation and Mitigation Strategies, or REMS, program, including in connection with a drug's approval, to help ensure that the benefits of the drug outweigh its risks. A REMS may be required to include various elements, such as a medication guide or patient package insert, a communication plan to educate healthcare providers of the drug's risks, limitations on who may prescribe or dispense the drug, requirements that patients enroll in a registry or undergo certain health evaluations or other measures that the FDA deems necessary to ensure the safe use of the drug.

With regard to any drug that receives regulatory approval, the labeling, packaging, adverse event reporting, storage, advertising, and promotion for the drug will be subject to extensive regulatory requirements. We and the manufacturers of our products are also required to comply with cGMP regulations, which include requirements relating to quality control and quality assurance, as well as the corresponding maintenance of records and documentation. Further, regulatory agencies must approve these manufacturing facilities before they can be used to manufacture our products, and these facilities are subject to ongoing regulatory inspections. In addition, regulatory agencies subject a drug, its manufacturer and the manufacturer's facilities to continual review and inspections. The subsequent discovery of previously unknown problems with a drug, including adverse events of unanticipated severity or frequency, or problems with the facility where the drug is manufactured, may result in restrictions on the marketing of that drug, up to and including withdrawal of the drug from the market. In the United States, the DEA and comparable state-level agencies also heavily regulate the manufacturing, holding, processing, security, recordkeeping, and distribution of drugs that are considered controlled substances, and the DEA periodically inspects facilities for compliance with its rules and regulations.

Our ability to generate revenues from any of our drugs that receive regulatory approval will be subject to a variety of risks, many of which are out of our control.

Despite having been approved for marketing by a regulatory agency, a drug may not gain market acceptance among patients, healthcare providers, healthcare payers or the medical community. We believe that the degree of market acceptance and our ability to generate revenues from such products will depend on a number of factors, including:

- timing of market introduction of our drugs and competitive drugs and alternative treatments;
- physician and patient awareness of our drugs;
- actual and perceived efficacy and safety of our drugs;

- incidence and severity of any side effects;
- potential or perceived advantages or disadvantages as compared to alternative treatments;
- effectiveness of sales, marketing and distribution support;
- price of our future products, both in absolute terms and relative to alternative treatments;
- the general marketplace for the particular drug;
- the effect of current and future healthcare laws on our drug candidates;
- availability of coverage and adequate reimbursement from government and other third-party payers; and
- product labeling or product insert requirements of the FDA or other regulatory authorities.

If our approved drugs fail to achieve market acceptance, we may not be able to generate significant revenues to be profitable.

Collaboration and license agreement relationships may lead to disputes, divert management's attention, expose us to liability, and delay drug development and commercialization, and we may not realize the full commercial potential of our drug candidates or drugs.

We may have conflicts with our prospective, current, or past collaborators or licensees, such as conflicts concerning rights and obligations under our agreements (including, for example, relating to indemnification for product liability claims and losses), the interpretation of preclinical or clinical data, the achievement of milestone or other payments, the ownership of intellectual property, or research and development, regulatory, commercialization, litigation, or other strategy. Collaborators or licensees may stop supporting our drug candidates or drugs, including if they no longer view the program as in their best financial or other interests or they develop or obtain rights to competing drug candidates or drugs. In addition, collaborators or licensees may fail to effectively develop, obtain approval for, or commercialize our drugs, which may result in us not realizing their full commercial potential. If any conflicts arise with any of our current, past, or prospective collaborators or licensees, the other party may act in a manner that is adverse to our interests. Any such disagreement could result in one or more of the following, each of which could delay, or lead to termination of, development or commercialization of our drug candidates or drugs, and in turn prevent us from generating revenues or cause us to incur liabilities:

- unwillingness or inability on the part of a collaborator or licensee to pay for studies or other research, milestones, royalties or other payments that we believe are due to us under a collaboration;
- uncertainty regarding ownership of intellectual property rights arising from our collaboration or license agreement activities, which could prevent us from entering into additional collaborations;
- unwillingness on the part of a collaborator or licensee to keep us informed regarding the progress of its development, regulatory, commercialization, pharmacovigilance, or other activities or to permit public disclosure of the results of those activities;
- slowing or cessation of a collaborator's or licensee's research, development, regulatory, or commercialization efforts with respect to our drug candidates or drugs; or
- litigation or arbitration with our collaborator or licensee, or with third parties (including relating to product liability, intellectual property, or other subject matters).

Setbacks and consolidation in the pharmaceutical and biotechnology industries could make entering into agreements with pharmaceutical companies to collaborate or commercialize our drugs more difficult and diminish our revenues.

Setbacks in the pharmaceutical and biotechnology industries, such as those caused by safety concerns relating to drugs or drug candidates, as well as competition from generic drugs, litigation and industry consolidation, may have an adverse effect on us, including by making it more difficult to enter into agreements with pharmaceutical companies to collaborate or commercialize our drugs and diminishing our revenues. For example, the FDA may be more cautious in approving our drug candidates based on safety concerns relating to these or other drugs or drug candidates, or pharmaceutical companies may be less willing to enter into new collaborations or continue existing collaborations if they are integrating a new operation as a result of a merger or acquisition or if their therapeutic areas of focus change following a merger.

We and our collaborators rely on third parties to conduct clinical trials and preclinical studies. If those parties do not comply with regulatory and contractual requirements, successfully carry out their contractual obligations, or meet expected deadlines, our drug candidates may not advance in a timely manner or at all.

In the course of our discovery, preclinical testing, and clinical trials, we and our collaborators rely on third parties, including investigators, clinical research organizations, manufacturers, and laboratories, to perform critical services. For example, we rely on third parties to conduct our clinical trials and many of our preclinical studies. Clinical research organizations are responsible for many aspects of the trials, including finding and enrolling participants for testing and administering the trials. Although we rely on these third parties to conduct our clinical trials, we are responsible for ensuring that each of our clinical trials is conducted in accordance with its investigational plan and protocol. Moreover, the FDA and foreign regulatory authorities require us to comply with regulations and standards, commonly referred to as Good Clinical Practices, or GCPs, for conducting, monitoring, recording, and reporting the results of clinical trials to ensure that the data and results are scientifically credible and accurate and that the trial participants are adequately informed of the potential risks of participating in clinical trials. Our reliance on third parties does not relieve us of these responsibilities and requirements. These third parties may not be available when we need them or, if they are available, may not comply with all legal, regulatory, and contractual requirements or may not otherwise perform their services in a timely or acceptable manner, and we may need to enter into new arrangements with alternative third parties, and our preclinical studies or clinical trials may be extended, delayed, or terminated. These independent third parties may also have relationships with other commercial entities, some of which may compete with us. In addition, if such third parties fail to perform their obligations in compliance with legal and regulatory requirements and our protocols, our preclinical studies or clinical trials may not meet regulatory requirements or may need to be repeated. As a result of our dependence on third parties, we may face delays or failures outside of our direct control. These risks also apply to the development activities of collaborators, and we do not control their research and development, clinical trial, or regulatory activities.

We may participate in new strategic transactions that could impact our liquidity, increase our expenses, present significant distractions to our management, and be viewed as unfavorable.

From time to time we consider strategic transactions, such as out-licensing or in-licensing of compounds or technologies, acquisitions of companies, asset purchases, and spin-offs. Additional potential transactions we may consider include a variety of different business arrangements, such as strategic collaborations, joint ventures, restructurings, divestitures, business combinations, and investments. In addition, another entity may pursue us as an acquisition target. Any such transaction may be viewed as unfavorable by our stockholders or others and may require us to incur non-recurring or other charges, may create potential liabilities, may increase our near- and long-term expenditures, and may pose significant integration challenges, require additional expertise, or disrupt our management or business, any of which could harm our operations and financial results.

When we evaluate significant proposed transactions we conduct business, legal, and financial due diligence with the goal of identifying and evaluating material risks involved in the transaction. Despite our efforts, we ultimately may be unsuccessful in ascertaining or evaluating all such risks and, as a result, might not realize the intended advantages of the transaction. If we fail to realize the expected benefits from any transaction we may consummate, whether as a result of unidentified risks, integration difficulties, regulatory setbacks, or other events, our business, results of operations, and financial condition could be adversely affected.

*** We may incur substantial liabilities for any product liability claims or otherwise as a drug product developer.**

We develop, test, manufacture, and expect to commercialize drugs for use by humans. We face an inherent risk of product liability exposure related to the testing of our drug candidates in clinical trials, and a risk with the commercialization of lorcaserin (previously marketed in the United States as BELVIQ and BELVIQ XR) as well as any other drug that may be approved for marketing.

Whether or not we are ultimately successful in any product liability or related litigation, such litigation would consume substantial amounts of our financial and managerial resources and might result in adverse publicity, all of which would impair our business. In addition, damages awarded in a product liability action could be substantial and could have a negative impact on our financial condition.

An individual may bring a liability claim against us if one of our drugs or drug candidates causes, or merely appears to have caused, an injury. Regardless of merit or eventual outcome, liability claims may result in:

- decreased demand for our drug;

- injury to our reputation;
- increased difficulty to attract, or withdrawal of, clinical trial participants;
- costs of related litigation;
- substantial monetary awards to clinical trial participants, patients, or other claimants;
- loss of revenues; and
- the inability to commercialize our drugs or drug candidates.

We have limited product liability insurance that covers our clinical trials and products as well as indemnification protection in certain of our collaboration or license agreements. Our insurance costs continue to rise, and we may not be able to maintain or obtain insurance coverage at a reasonable cost, we may not have insurance coverage that will be adequate to satisfy any liability that may arise, and our collaborators or licensees may not indemnify us, each of which could have an adverse effect on our results of operations and financial condition.

For example, in December 2016 we granted Eisai an exclusive, royalty-bearing license, or transferred intellectual property, to develop, manufacture, and commercialize lorcaserin (previously marketed in the United States as BELVIQ and BELVIQ XR) in all countries and territories of the world. Our former subsidiary Arena Pharmaceuticals GmbH, or Arena GmbH, manufactured BELVIQ and other products for commercialization or clinical trials up until the sale of that manufacturing business to Siegfried effective March 31, 2018. Under our agreements with Eisai, we and Eisai will each bear 50% of losses arising from any alleged defective manufacturing of BELVIQ by Arena GmbH prior to the date of the sale to Siegfried, and Eisai will be solely responsible for any expenses and losses associated with other product liability claims. In February 2020, the FDA requested that Eisai withdraw lorcaserin products from the U.S. market based on the FDA's analysis of data from a study completed by Eisai and a change in the FDA's risk-benefit assessment of lorcaserin, and regulators in other countries have taken similar steps. Eisai agreed to voluntarily withdraw lorcaserin products from the U.S. market, as requested by the FDA, and from foreign markets. Following these events, lawsuits relating to lorcaserin against us and others have been filed in the United States and abroad. Any damages awarded in connection with lorcaserin litigation could be substantial and have a negative impact on our financial condition. Eisai or others could also take the position that some or all claims fall outside their indemnification obligations, or they could be unable to indemnify us, in connection with litigation or other claims, and seeking to enforce rights to indemnification could require significant financial resources and management attention. Even if we are successful in defending against all claims or are fully indemnified or insured, such claims could still consume significant financial resources, divert attention away from our day-to-day activities, and result in adverse publicity, all of which could have a negative impact on our financial condition and our business.

We have significant contractual obligations that may adversely affect our cash flow, cash position, and stock price.

We have long-term leases on real properties and other contractual obligations, and limited revenues. If we are unable to generate cash from operations in the future sufficient to meet our financial obligations we will need to obtain additional funds from other sources, and we may not be able to do so at all or on terms favorable to our stockholders or us.

Also, if we do not have sufficient cash in the future and are unable to generate cash from operations or obtain additional funds from other sources sufficient to meet our contractual obligations, we may have to delay or curtail some or all of our development and commercialization programs, sell or license some or all of our assets on terms that you or others may view as unfavorable, or default on obligations under our agreements.

*** We may be subject, directly or indirectly, to federal, state, and foreign healthcare laws and regulations, including but not limited to fraud and abuse and false claims laws as well as data protection. If we are unable to comply, or have not fully complied, with such laws or regulations, we could face substantial penalties and prosecution.**

In the United States, drug manufacturers and marketers are subject to various state and federal fraud and abuse laws, including, without limitation, the Federal Anti-Kickback Statute and Federal False Claims Act. There are similar laws in other countries. These laws may impact, among other things, the research, manufacturing, sales, marketing, and education programs for our drugs.

The Federal Anti-Kickback Statute prohibits persons and entities from knowingly and willingly soliciting, offering, receiving, or providing any remuneration, directly or indirectly, in exchange for or to induce either the referral of an individual, or the purchase, lease, order, or furnishing or arranging for, a good, item, facility, or service, for which payment may be made, in whole or in part, under a federal healthcare program such as the Medicare and Medicaid programs. Several courts have interpreted the statute's intent requirement to mean that if any one purpose of an arrangement involving remuneration is to induce referrals of federal healthcare covered business, the statute has been violated. The Federal Anti-Kickback Statute is broad and, despite a series of narrow statutory exceptions and regulatory safe harbors, prohibits many arrangements and practices that are lawful in businesses outside of the healthcare industry. Moreover, the ACA, among other things, amended the intent requirement of the Federal Anti-Kickback Statute and certain criminal healthcare fraud statutes. A person or entity no longer needs to have actual knowledge of these statutes or specific intent to violate them. The ACA also provides that the government may assert that a claim including items or services resulting from a violation of the Federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the Federal Civil False Claims Act. Many states have also adopted laws similar to the Federal Anti-Kickback Statute, some of which apply to the referral of patients for healthcare items or services reimbursed by any source, not only the Medicare and Medicaid programs.

The Federal Civil False Claims Act prohibits, among other things, persons or entities from knowingly presenting, or causing to be presented, a false claim to, or the knowing use of false statements to obtain payment from, the federal government. Suits filed under the Federal Civil False Claims Act can be brought by any individual on behalf of the government, known as "qui tam" actions, and such individuals, commonly known as "whistleblowers," may share in any amounts paid by the entity to the government in fines or settlement. The filing of qui tam actions has caused a number of pharmaceutical, medical device, and other healthcare companies to have to defend a Federal Civil False Claims Act action. When an entity is determined to have violated the Federal Civil False Claims Act, it may be required to pay up to three times the actual damages sustained by the government, plus civil penalties for each separate false claim, in addition to other penalties that may apply. Various states have also enacted laws modeled after the Federal Civil False Claims Act, some of which are broader in scope and may apply regardless of payer.

The Federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, created federal criminal statutes that prohibit, among other actions, knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program, including private third-party payers, knowingly and willfully embezzling or stealing from a healthcare benefit program, willfully obstructing a criminal investigation of a healthcare offense, and knowingly and willfully falsifying, concealing, or covering up a material fact or making any materially false, fictitious or fraudulent statement in connection with the delivery of or payment for healthcare benefits, items, or services. Additionally, the civil monetary penalties statute imposes penalties against any person or entity that, among other things, is determined to have presented or caused to be presented a claim to a federal healthcare program that the person knows or should know is for an item or service that was not provided as claimed or is false or fraudulent.

The Federal Physician Payments Sunshine Act, created under the ACA, and its implementing regulations require certain manufacturers of drugs, devices, biologicals, and medical supplies for which payment is available under Medicare, Medicaid, or the Children's Health Insurance Program (with certain exceptions) to report annually to CMS information related to payments or other transfers of value made to physicians (defined to include doctors, dentists, optometrists, podiatrists, and chiropractors) and teaching hospitals, as well as ownership and investment interests held by physicians and their immediate family members. Beginning in 2022, applicable manufacturers also will be required to report such information regarding their transfers of value during the previous year to physician assistants, nurse practitioners, clinical nurse specialists, certified registered nurse anesthetists, anesthesiologist assistants, and certified nurse midwives.

We may be subject to healthcare data privacy and security regulation by foreign, federal and local governments in the jurisdictions in which we conduct our business. In the U.S., at the federal level, HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, or HITECH, and their respective implementing regulations, impose specified requirements on certain healthcare providers, health plans, and healthcare clearinghouses, known as covered entities, as well as their business associates and their covered subcontractors that perform services involving the use or disclosure of individually identifiable health information relating to the privacy, security, and transmission of individually identifiable health information. Further, we may also be subject to U.S. state health information privacy and data breach notification laws which govern the collection, use, disclosure, and protection of health-related and other personal information, many of which differ from each other in significant ways and often are not pre-empted by HIPAA, thus requiring additional compliance efforts.

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

Outside the United States, interactions between pharmaceutical companies and physicians are also governed by strict laws, such as national anti-bribery and kickback laws of European countries, regulations, industry self-regulation codes of conduct, and physicians' codes of professional conduct. Payments made to physicians in certain European Union Member States must be publicly disclosed. Moreover, agreements with physicians often must be the subject of prior notification and approval by the physician's employer, his or her competent professional organization, and/or the regulatory authorities of the individual European Union Member States. Failure to comply with these requirements could result in reputational risk, public reprimands, administrative penalties, fines, or imprisonment. Risks associated with these laws may increase as new laws and regulations are adopted and as enforcement agencies adopt or increase enforcement efforts.

We are unable to predict whether we could be subject to actions under any of these fraud and abuse or other laws, or the impact of such actions. If we are found to be in violation of any of the laws described above and other applicable federal, state and international laws, we may be subject to penalties, including significant civil, criminal and/or administrative penalties, damages, fines, individual imprisonment, disgorgement, possible exclusion from government healthcare reimbursement programs, integrity oversight and reporting obligations to resolve allegations of non-compliance with these laws, and the curtailment or restructuring of our operations, all of which could have a material adverse effect on our business and results of operations.

*** We may be subject to evolving laws, regulations, rules, contracts and other obligations regarding data privacy and protection, our actual or perceived failure to comply with such obligations could harm our reputation, subject us to government enforcement actions (that could carry potentially significant fines or penalties for non-compliance) and private litigation, or other adverse effects on our business or prospects.**

Across the United States and globally, laws and regulations governing data privacy and security continue to develop and evolve. The data privacy and security laws, regulations, rules, contracts and other obligations to which we are subject may significantly affect our business activities. Many of the obligations that apply to us contain ambiguous provisions or impose requirements that differ from country to country, creating uncertainty. Compliance with the enhanced obligations imposed by such obligations may require us to revise our business practices, allocate more resources to privacy and security, and implement new technologies. Such efforts may result in significant costs to our business. Noncompliance could result in proceedings against us by governmental and regulatory entities, collaborators, data subjects or others.

The legislative and regulatory framework relating to the collection, use, retention, safeguarding, disclosure, sharing, transfer, security and other processing (or, collectively, Process or Processing) of personal data worldwide is rapidly evolving and is likely to remain uncertain for the foreseeable future. The regulatory frameworks for privacy issues may result in ever-increasing regulatory and public scrutiny and escalating levels of enforcement and sanctions, including monetary penalties and personal data processing penalties (including an inability to process personal data).

For example, the European Economic Area, Switzerland, United Kingdom and certain other foreign territories have restrictions on the Processing of certain personal data, including providing that transfers of personal data outside of their territories may only take place if the country to which the personal data is transferred ensures an "adequate" level of privacy protection. One of the primary safeguards that allowed U.S. companies to import personal data from Europe had been certification to the EU-U.S. Privacy Shield and Swiss U.S. Privacy Shield frameworks administered by the U.S. Department of Commerce. However, the Court of Justice of the EU, or CJEU, invalidated the EU U.S. Privacy Shield, in a case known as "Schrems II." Following this decision: the UK government has similarly invalidated use of the EU U.S. Privacy Shield as a mechanism for lawful personal data transfers from the UK to the United States under the UK GDPR; and the Swiss Federal Data Protection and Information Commissioner announced that the Swiss-U.S. Privacy Shield does not provide adequate safeguards for the purposes of personal data transfers from Switzerland to the United States. The CJEU's decision in Schrems II also raised questions about whether one of the primary alternatives to the EU-U.S. Privacy Shield, namely, the European Commission's Standard Contractual Clauses, can lawfully be used for personal data transfers from Europe to the United States or other third countries that are not the subject of an adequacy decision of the European Commission. At present, there are few, if any, viable alternatives to the Standard Contractual Clauses. As such, if we are unable to implement a valid mechanism for

personal data transfers from Europe, we will face increased exposure to regulatory actions, substantial fines and injunctions against Processing personal data from Europe. Inability to export personal data may also: restrict our activities outside Europe; limit our ability to collaborate with partners as well as other service providers, contractors and other companies outside of Europe; and/or require us to increase our Processing capabilities within Europe at significant expense or otherwise cause us to change the geographical location or segregation of our relevant systems and operations – any or all of which could adversely affect our operations or financial results. Additionally, other countries outside of Europe have enacted or are considering enacting similar cross-border data transfer restrictions and laws requiring local data residency, which could increase the cost and complexity of delivering our services and operating our business. The type of challenges we face in Europe will likely also arise in other jurisdictions that adopt regulatory frameworks of equivalent complexity.

Collectively, European data protection laws (including the General Data Protection Regulation, or GDPR) are wide-ranging in scope (including extra-territoriality measures intended to bring non-EU companies under the regulation) and impose numerous, significant and complex compliance burdens in relation to the Processing of personal data. In particular, the Processing of "special category personal data" (such as personal data related to health and genetic information even if key-coded), which will be relevant to our operations in the context of our conduct of clinical trials, imposes heightened compliance burdens under European data protection laws and is a topic of active interest among relevant regulators. Fines for non-compliance with the GDPR are steep, with potential fines of up to 20 million Euros or 4% of our global revenue, whichever is greater. In addition, the GDPR authorizes penalties for non-compliance and civil litigation claims.

In addition, the GDPR provides that EEA member states may introduce specific requirements related to the Processing of special categories of personal data such as health data that we may process in connection with clinical trials or otherwise. In the UK, the UK Data Protection Act 2018 complements the UK GDPR in this regard. This fact may lead to greater divergence on the law that applies to the Processing of such personal data across the EEA and/or UK, which may increase our costs and overall compliance risk. Such country-specific regulations could also limit our ability to Process relevant personal data in the context of our EEA and/or UK operations ultimately having an adverse impact on our business and harming our business as well as financial condition. Further, the UK's decision to leave the EU, often referred to as Brexit, and ongoing developments in the UK have created uncertainty regarding data protection regulation in the UK. Following December 31, 2020, and the expiry of transitional arrangements between the UK and EU, the data protection obligations of the GDPR continue to apply to UK-related Processing of personal data in substantially unvaried form under the so-called 'UK GDPR' (i.e., the GDPR as it continues to form part of UK law by virtue of section 3 of the EU (Withdrawal) Act 2018, as amended). However, going forward, there is increasing risk for divergence in application, interpretation and enforcement of the data protection laws as between the UK and EEA. Furthermore, the relationship between the UK and the EEA in relation to certain aspects of data protection law remains uncertain. For example, it is unclear whether transfers of personal data from the EEA to the UK will be permitted to take place on the basis of a future adequacy decision of the European Commission (drafts of such a decision have been released), or whether a 'transfer mechanism' such as the Standard Contractual Clauses will be required. Under the post-Brexit Trade and Cooperation Agreement between the EU and the UK, the UK and EU have agreed that transfers of personal data to the UK from EEA member states will not be treated as 'restricted transfers' to a non-EEA country for a period of up to four months from January 1, 2021, plus a potential further two months extension (the "Extended Adequacy Assessment Period"). Although the current maximum duration of the Extended Adequacy Assessment Period is six months, it may end sooner, for example, in the event that the European Commission adopts an adequacy decision in respect of the UK, or the UK amends the UK GDPR and/or makes certain changes regarding data transfers under the UK GDPR/Data Protection Act 2018 without the consent of the EU (unless those amendments or decisions are made simply to keep relevant UK laws aligned with the EU's data protection regime). If the European Commission does not adopt an 'adequacy decision' in respect of the UK prior to the expiry of the Extended Adequacy Assessment Period, from that point onwards the UK will be an 'inadequate third country' under the GDPR and transfers of data from the EEA to the UK will require a 'transfer mechanism' such as the Standard Contractual Clauses.

Additionally, the California Consumer Privacy Act, or CCPA, went into effect on January 1, 2020 and establishes a privacy framework for covered businesses, including an expansive definition of personal data and data privacy rights. The CCPA created new individual privacy rights for California residents and places increased privacy and security obligations on covered businesses Processing personal data. The CCPA requires covered businesses to provide new disclosures to California residents and provide such individuals with new ways to opt-out of certain sales of personal data. The CCPA also provides a private cause of action and statutory damages for violations, including for data breaches. Although the CCPA exempts certain data regarding clinical trials, the CCPA, to the extent applicable to our business and operations, may impact our business activities by increasing our compliance costs and potential liability with respect to personal information that we maintain about California residents. It is anticipated that the CCPA will be expanded on January 1, 2023, when the California Privacy Rights Act of 2020 ("CPRA") becomes operative. The CPRA will, among other things, give California residents the ability to limit use of certain sensitive personal data, further restrict the use of cross-contextual advertising, establish restrictions on the retention of personal data, expand the types of data breaches subject to the CCPA's private right of action, provide for increased penalties for CPRA violations concerning California residents under the age of 16, and establish a new California Privacy Protection

Agency to implement and enforce the law. These laws (such as the GDPR, CCPA and CPRA) exemplify the vulnerability of our business to the evolving regulatory environment related to personal data.

Also, we publish privacy policies and other documentation regarding our Processing of personal information. Although we endeavor to comply with our published policies and other documentation, we may at times fail to do so or may be perceived to have failed to do so. Moreover, despite our efforts, we may not be successful in achieving compliance if our employees or third-party vendors fail to comply with our published policies and documentation. Such failures can subject us to potential foreign, local, state and federal action if they are found to be deceptive, unfair, or misrepresentative of our actual practices. Moreover, subjects about whom we or our partners obtain information, as well as the providers who share this information with us, may contractually limit our ability to use and disclose the information. Claims that we have violated individuals' privacy rights or failed to comply with data protection laws or applicable privacy notices even if we were found not liable, could be expensive and time-consuming to defend and could result in adverse publicity that could harm our business.

We may not be able to effectively integrate, manage or maintain our international operations, and such difficulty could adversely affect our business operations, financial condition, results of operations and stock price.

We have personnel in Switzerland, and we engage in clinical trials and other activities in many territories outside of the United States. There are significant risks associated with foreign operations, including but not limited to:

- compliance with various local laws and regulations, which may conflict or change, such as privacy regulations, tax laws, export and import restrictions, employment laws, regulatory requirements, and other governmental approvals, permits, and licenses;
- complexities and difficulties in obtaining protection for and enforcing our intellectual property rights;
- difficulties in staffing and managing foreign operation, such as the integration of our corporate culture with local customs and cultures;
- the distraction to our management;
- foreign currency exchange rates and the impact of shifts in the United States and local economies on those rates;
- certain expenses including, among others, expenses for travel, translation, and insurance; and
- integration of our policies and procedures, including disclosure controls and procedures and internal control over financial reporting, with our international operations.

Any of these risks could adversely affect our business.

We and third parties we contract with use hazardous materials in our operations.

Our activities involve the use of materials that could be hazardous to human health and safety or the environment. We cannot completely eliminate the risks associated with their use, storage, or disposal, which could cause:

- interruption of our development or manufacturing efforts;
- injury to our employees and others;
- environmental damage resulting in costly cleanup; and
- liabilities under domestic or foreign laws and regulations governing the use, storage, handling, and disposal of these materials and specified waste products.

In such an event, we may be held liable for any resulting damages, and any such liability could exceed our resources. Although we carry insurance in amounts and type that we consider commercially reasonable, we cannot be certain that the coverage or coverage limits of our insurance policies will be adequate, and we do not have insurance coverage for losses relating to an interruption of our research and development efforts caused by contamination.

*** Our business, including our preclinical and clinical programs, may be significantly and adversely affected by the COVID-19 pandemic.**

Coronavirus disease 2019, or COVID-19, has spread globally, including in the United States and Switzerland, where we have operations, and in many other countries where we are conducting or plan to conduct clinical trials or have manufacturing activities conducted. COVID-19 is impacting domestic and worldwide economic activity, including global

financial markets on which we rely for financing to fund our operations. The COVID-19 pandemic poses the risk that we or our clinical trial participants, employees, contractors, collaborators and vendors may be prevented from conducting certain clinical trials or other business activities for an indefinite period of time, including due to "stay-at-home" orders or shutdowns that have been or may be requested or mandated by governmental authorities. Beginning the week of March 16, 2020, substantially all of our workforce began working from home either all or substantially all of the time, and they continue to do so as of the date of this filing. Due to the COVID-19 pandemic and our remote workforce, there exists an increased risk to our information technology assets and data. The pandemic, stay-at-home orders, and our work-from-home policies may negatively impact productivity, disrupt our business, and delay our development programs, all of which may delay our regulatory and commercialization timelines. The magnitude of these impacts will depend, in part, on the length and severity of the restrictions and other limitations on our ability to conduct our business in the ordinary course, which will in turn depend on a variety of factors including vaccination rates, which vary greatly from region to region, and the emergence and spread of new variants of the coronavirus.

The COVID-19 pandemic has impacted and may continue to impact our clinical programs, including our etrasimod, olorinab, and APD418 programs. For example, some clinical site activations and participant enrollment and screening rates slowed for certain periods in certain regions. These timing changes, however, have been highly variable and their aggregate impact remains uncertain. As a result, it is not possible at this time to estimate the total impact COVID-19 will have on our clinical programs. If the COVID-19 pandemic continues in the United States and around the world, we may experience, or continue to experience, disruptions that could severely impact our preclinical studies and clinical trials, including:

- delays in receiving approval from local regulatory authorities to initiate our planned clinical trials;
- delays or difficulties in enrolling or retaining participants in our clinical trials;
- delays or difficulties in clinical site initiation, including difficulties in recruiting clinical site investigators and clinical site staff;
- delays in clinical sites receiving the supplies and materials needed to conduct our clinical trials, including interruption in global shipping that may affect the transport of clinical trial materials;
- changes in local regulations as part of a response to the COVID-19 pandemic which may require us to change the ways in which our clinical trials are conducted, which may result in unexpected costs, or to discontinue the clinical trials altogether;
- diversion of healthcare resources away from the conduct of clinical trials, including the diversion of hospitals serving as our clinical trial sites and hospital staff supporting the conduct of our clinical trials;
- interruption of key clinical trial activities, such as clinical trial site monitoring, due to limitations on travel imposed or recommended by federal or state governments, employers and others, or interruption of clinical trial participant visits and study procedures, the occurrence of which could affect the integrity of clinical trial data;
- risk that participants enrolled in our clinical trials will acquire COVID-19 while the clinical trial is ongoing, which could impact the results of the clinical trial, including by increasing the number of observed adverse events;
- interruptions in preclinical studies due to restricted or limited operations at our research and development facilities;
- delays in necessary interactions with local regulators, ethics committees, and other important agencies and contractors due to limitations in employee resources or forced furlough of employees;
- limitations in employee resources that would otherwise be focused on the conduct of our clinical trials, including because of sickness of employees or their families or the desire of employees to avoid contact with large groups of people;
- refusal of the FDA or other regulatory authorities to accept data from clinical trials in affected geographies; and
- interruption or delays to our sourced discovery and clinical activities.

The COVID-19 pandemic continues to rapidly evolve. The extent to which the outbreak impacts our business, preclinical studies, and clinical programs will depend on future developments, which are highly uncertain and cannot be predicted with confidence, such as the ultimate geographic spread of the disease, the emergence and spread of novel variants of the coronavirus, the duration of the pandemic, stay-at-home orders, travel restrictions, and "social distancing" in the United

States, Switzerland and other countries, business closures or business disruptions, and the effectiveness of actions taken in the United States and other countries to contain and treat the disease and vaccinate their populations.

*** Our business and operations might be disrupted or adversely affected by catastrophic events and security breaches, including any cybersecurity incidents.**

Our U.S. operations are primarily located in a business park in San Diego, California and an office in Boston, Massachusetts, and our principal executive offices are located in Park City, Utah. We also have certain operations in Zug, Switzerland. We depend on our facilities and on collaborators, licensees, contractors, and vendors for the continued operation of our business, some of whom are located in Europe and Asia. As a result, natural disasters or other catastrophic events in various parts of the world, including interruptions in the supply of natural resources, political and governmental changes, disruption in transportation networks or delivery services, severe weather conditions, wildfires and other fires, explosions, actions of animal rights activists, terrorist attacks, earthquakes, wars, and public health issues (including the COVID-19 pandemic) could disrupt our operations or those of our collaborators, contractors, and vendors or contribute to unfavorable economic or other conditions that could adversely impact us.

In addition, we depend on the efficient and uninterrupted operation of information technology and communications systems, which we use for, among other things, processing sensitive company data, including our financial data, intellectual property, personal information, and other proprietary business information. We may use third-party service providers to help us operate our business and engage in processing of company data. We may also share such company data with our partners and other third parties in conjunction with our business. Relevant laws, regulations, industry standards, contractual obligations, and published statements, may require us to implement specific security measures or use industry-standard or reasonable measures to protect against security breaches. If we, our service providers, partners or other relevant third parties have experienced, or in the future experience, any security incident(s) that result in, any data loss, deletion, or destruction; unauthorized acquisition, disclosure or access; or other compromise related to the security, confidentiality, integrity of our (or their) information technology systems or data, it may materially and adversely affect our business such as the diversion of funds to address the security incident(s); interruptions, delays or outages in our operations and development programs; subject us to regulatory investigations and enforcement actions; the imposition upon us significant regulatory fines; and exposure to private litigation. We may be required to expend significant resources, fundamentally change our business activities and practices, or modify our operations, including our clinical trial activities, or information technology in an effort to protect against security incidents and to mitigate, detect, and remediate actual and potential vulnerabilities.

While certain of our operations have business continuity and disaster recovery plans and other security measures intended to prevent and minimize the impact of IT-related interruptions, our IT infrastructure and the IT infrastructure of our current and any future collaborators, contractors, and vendors are vulnerable to damage from cyberattacks, computer viruses, unauthorized access, user error or malfeasance, data corruption, electrical failures and natural disasters or other catastrophic events. If our security measures, or those maintained on our behalf, are compromised now, or in the future, or the security, confidentiality, integrity or availability of, our information technology systems or data is compromised or fails, we could experience material adverse impacts. We could experience failures in our information systems, which could result in an interruption of our normal business operations and require substantial expenditure of financial and administrative resources to remedy. System failures, accidents, or security breaches can cause interruptions in our operations and can result in a material disruption of our research and development programs and other business operations. The loss of data from completed or future studies or clinical trials could result in delays in our research, development, or regulatory approval efforts and significantly increase our costs to recover or reproduce the data. Similarly, we and our licensees rely on third parties to conduct studies and clinical trials of our drug candidates and manufacture our drug candidates, and similar events relating to these third parties' information computer systems could also have a material adverse effect on our business. To the extent that any disruption or security breach were to result in a loss of, or damage to, our data or applications, or inappropriate disclosure of confidential or proprietary information, we could incur liabilities and the development of any of our other drug candidates and the commercialization of drugs could be delayed or otherwise adversely affected. Actual or perceived security incidents, and concerns regarding data privacy, security or processing may cause our actual or perspective customers, collaborators, partners and/or clinical trial participants to stop participating in our trials, using our products or working with us. This discontinuance of relationships with third parties, or failure to meet the expectations of such third parties, could result in material harm to our operations, financial performance or reputation and affect our ability to grow and operate our business.

If a security incident affects our or third parties' systems upon which we rely, corrupts our data or results in the unauthorized disclosure or release of personal information, our reputation could be materially damaged or our operations, disrupted. In addition, such a breach may require notification to governmental agencies, supervisory bodies, credit reporting agencies, the media, individuals or others pursuant to various federal, state and foreign data protection, privacy and security laws, regulations, guidelines, contracts and published statements, if applicable. Such disclosures are costly, and the disclosure

or the failure to comply with such requirements could lead to material adverse effect on our reputation, business, or financial condition.

Even though we believe we carry commercially reasonable business interruption and liability insurance, and our contractors may carry liability insurance that protect us in certain events, we might suffer losses as a result of business interruptions or security incidents that exceed the coverage available under our and our contractors' insurance policies or for which we or our contractors do not have coverage. For example, we are not insured against a terrorist attack. Any natural disaster or catastrophic event could have a significant negative impact on our operations and financial results. Moreover, any such event could delay our research and development programs and adversely affect, which may include stopping, our commercial production.

We and our employees and directors may be named as defendants in litigation that could result in substantial costs and divert management's attention.

Securities class action litigation may be brought against a company following a decline in the market price of its securities. This risk is especially relevant for us because companies in the pharmaceuticals industry often experience significant stock price volatility. For example, beginning in 2010, a number of lawsuits were filed against us and certain of our employees and directors alleging we and the other defendants violated federal securities laws by making materially false and misleading statements regarding our lorcaserin trials, thereby artificially inflating the price of our common stock. These lawsuits were settled in 2018.

While we carry liability insurance, any losses we incur in connection with any current or future lawsuits may not be covered by insurance in an amount sufficient to cover our losses or at all, and our assets may be insufficient to cover any amounts that exceed our insurance coverage. We may have to pay damage awards or otherwise may enter into settlement arrangements in connection with any future claims. A settlement of any of future lawsuit against us could also involve the issuance of common stock or other equity, which may dilute your ownership interest. Any payments or settlement arrangements could have material adverse effects on our business, operating results, financial condition, or your ownership interest. Even if the plaintiffs' claims are not successful, any future lawsuit against us and/or our directors or executive officers could result in substantial costs and significantly and adversely impact our reputation and divert our management's attention and resources, which could have a material adverse effect on our business, operating results or financial condition. In addition, any such lawsuits may make it more difficult to finance our operations, obtain certain types of insurance (including directors' and officers' liability insurance), and attract and retain qualified executive officers, other employees, and directors.

Negative U.S. and global economic conditions may pose challenges to our business strategy, which relies on funding from collaborators or the financial markets, and may create other financial risks for us.

While significant uncertainty remains as to the aggregate impact of the COVID-19 pandemic on our operations and liquidity, and on the global economy as a whole, the COVID-19 pandemic has already had a significant adverse impact on domestic and global economies, as well as global financial markets. Negative conditions in the U.S. or global economy, including financial markets, may adversely affect our business and the business of our current and prospective collaborators, distributors, and licensees, which we sometimes refer to generally as our collaborators, and others with which we do or may conduct business. The duration and severity of these conditions is uncertain. If negative economic conditions persist or worsen, we may be unable to secure funding to sustain our operations or to find suitable collaborators to advance our internal programs, even if we achieve positive results from our research and development or business development efforts. Such negative conditions could also impact commercialization of any drugs we and our collaborators and licensees develop, as well as our financial condition. From time to time we may maintain a portfolio of investments in marketable debt securities, which are recorded at fair value. Although we have established investment guidelines relative to diversification and maturity with the objectives of maintaining safety of principal and liquidity, we rely on credit rating agencies to help evaluate the riskiness of investments, and such agencies may not accurately predict such risk. In addition, such agencies may reduce the credit quality of our individual holdings, which could adversely affect their value. Lower credit quality and other market events, such as changes in interest rates and deterioration in credit markets, may have an adverse effect on the fair value of our investment holdings and cash position.

Currency fluctuations may negatively affect our financial condition.

We primarily spend and generate cash in U.S. dollars and present our consolidated financial statements in U.S. dollars. However, a portion of our expected and potential payments and receipts, including relating to our Swiss operations and under certain of our agreements, are in foreign currencies. A fluctuation of the exchange rates of foreign currencies versus the U.S. dollar may, thus, adversely affect our financial results, including cash balances, expenses and revenues. We may in the future

enter into hedging transactions to try to reduce our foreign currency exposure, but there is no assurance that such transactions will occur or be successful.

*** Our ability to use our net operating losses and certain other tax attributes to offset future taxable income or taxes may be limited.**

As of December 31, 2020, we had federal and state net operating loss carryforwards of $945.7 million and $446.6 million, respectively. Portions of our federal net operating loss carryforwards, if not utilized, will begin to expire in 2028, and our state net operating loss carryforwards will begin to expire in 2028. Our net operating loss carryforwards could expire unused and be unavailable to offset future income tax liabilities. Under the TCJA, as modified by the Coronavirus Aid, Relief, and Economic Security Act, or CARES Act, federal net operating losses incurred in tax years beginning after December 31, 2017, may be carried forward indefinitely, but the deductibility of such federal net operating losses in tax years beginning after December 31, 2020 is limited to 80% of taxable income. It is uncertain if and to what extent various states will conform to federal tax laws. In addition, under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended, or the IRC, and corresponding provisions of state law, if a corporation undergoes an "ownership change," which generally is defined as a greater than 50% change, by value, in its equity ownership over a three-year period, the corporation's ability to use its pre-change net operating loss carryforwards and other pre-change tax attributes to offset its post-change income or taxes may be limited. We have experienced ownership changes in the past and we may experience additional ownership changes in the future as a result of subsequent shifts in our stock ownership, some of which may be outside of our control. If an ownership change occurs and our ability to use our net operating loss carryforwards is materially limited, it would harm our future operating results by effectively increasing our future tax obligations. Similar provisions of state law also may apply to limit the use of our state net operating loss carryforwards. In addition, at the state level, there may be periods during which the use of net operating losses is suspended or otherwise limited, which could accelerate or permanently increase state taxes owed. For example, California passed legislation imposing limits on the usability of California state net operating losses and certain tax credits in tax years beginning after 2019 and before 2023.

Risks Relating to Our Intellectual Property

Our success is dependent on intellectual property rights held by us and third parties and our interest in these rights is complex and uncertain.

Our success will depend on our own and on current or future collaborators' abilities to obtain, maintain, and defend patents. In particular, the patents directed to our drug candidates and drugs are important to developing and commercializing drugs and to our revenue. We have numerous U.S. and foreign patents issued and patent applications pending for our technologies. There is no assurance that any of our patent applications will issue, or that any of the patents will be enforceable or will cover a drug or other commercially significant technology or method, or that the patents will be held to be valid for their expected terms.

The procedures for obtaining a patent are complex. These procedures require an analysis of the scientific technology related to the invention and many sophisticated legal issues. Obtaining patent rights outside the United States often requires the translation of highly technical documents and an improper translation may jeopardize our patent protection. Ensuring adequate quality of translators and foreign patent attorneys is often very challenging. Consequently, the process for having our pending patent applications issue as patents will be difficult, complex, time consuming, and expensive. Our patent position is very uncertain, and we do not know when, or if, we will obtain additional patents, or if the scope of the patents obtained will be sufficient to protect our drugs or be considered sufficient by parties reviewing our patent positions pursuant to a potential marketing, licensing, or financing transaction.

In addition, other entities may challenge the validity or enforceability of our patents in litigation or administrative proceedings. We cannot make assurances as to how much protection, if any, our patents will provide if we attempt to enforce them or if they are challenged. It is possible that a competitor or a generic pharmaceutical provider may successfully challenge our patents and those challenges may result in reduction or elimination of our patent coverage.

We also rely on confidentiality agreements and trade secrets to protect our technologies. However, such information is difficult to protect. We require our employees to contractually agree not to improperly use our confidential information or disclose it to others, but we may be unable to determine if our employees have conformed or will conform to their legal obligations under these agreements. We also enter into confidentiality agreements with prospective collaborators, collaborators, service providers, and consultants, but we may not be able to adequately protect our trade secrets or other proprietary information in the event of any unauthorized use or disclosure or the lawful development by others of this information. Many of our employees and consultants were, and many of them may currently be, parties to confidentiality agreements with other

pharmaceutical and biotechnology companies, and the use of our technologies could violate these agreements. In addition, third parties may independently discover our trade secrets or other proprietary information.

Some of our research and development collaborators and scientific consultants have rights to publish data and information to which we have rights. We generally seek to prevent our collaborators and consultants from disclosing scientific discoveries before we have the opportunity to file patent applications on such discoveries. In some of our collaborations we do not control our collaborators' ability to disclose their own discoveries under the collaboration, and in some of our academic relationships we are limited to relatively short periods to review a proposed publication and file a patent application. If we cannot maintain confidentiality in connection with our collaborations and relationships, our ability to receive patent protection or protect our proprietary information will be impaired.

We believe that the United States is by far the largest single market for pharmaceuticals in the world. Because of the critical nature of patent rights to our industry, changes in U.S. patent laws could have a profound effect on our future profits, if any. It is unknown which, if any, patent laws will change, how changes to patent laws would ultimately be enforced by the courts, and how they would impact our business.

A dispute regarding the infringement or misappropriation of our proprietary rights or the proprietary rights of others could be costly and result in delays or termination of our future research, development, manufacturing, and sales activities.

Our commercial success depends upon our ability to develop and manufacture our drugs and drug candidates, market and sell drugs, and conduct our research and development activities without infringing or misappropriating the proprietary rights of others. There are many issued patents and pending patent applications owned by others relating to research and development programs that could be determined to be similar, identical, or superior to ours or our licensors or collaborators. We may be exposed to future litigation by others based on claims that our drugs, drug candidates, technologies, or activities infringe the intellectual property rights of others. Numerous issued patents and pending patent applications owned by others exist in the areas of our research and development, including some that purport to allow the patent holder to control the use of all drugs that modulate a particular drug target regardless of whether the infringing drug bears any structural resemblance to a chemical compound known to the patent holder at the time of patent filing. Numerous issued patents and pending patent applications owned by others also exist in the therapeutic areas in which we are developing drugs. There are also numerous issued patents and pending patent applications owned by others that are directed to chemical compounds or synthetic processes that may be necessary or useful to our research, development, manufacturing, or commercialization activities. These could materially affect our ability to develop our drug candidates or manufacture, import, or sell drugs, and our activities, or those of our licensors or collaborators, could be determined to infringe these patents. Because patent applications can take many years to issue, there may be currently pending applications, unknown to us, that may later result in issued patents that our drugs, drug candidates, or technologies may infringe. There also may be existing patents owned by others, of which we are not aware, that our drug candidates or technologies may infringe. Further, there may be issued patents or pending patent applications owned by others in fields relevant to our business, of which we are or may become aware, that we believe (i) are invalid, unenforceable, or we do not infringe; (ii) relate to immaterial portions of our overall research and development, manufacturing, and commercialization efforts; or (iii) in the case of pending patent applications, the resulting patent would not be granted or, if granted, would not likely be enforced in a manner that would materially impact such efforts. We cannot assure you that others holding any of these patents or patent applications will not assert infringement claims against us and seek damages or enjoinment of our activities. We also cannot assure you that, in the event of litigation, we will be able to successfully assert non-infringement, unenforceability, invalidity, or immateriality, or that any infringement claims will be resolved in our favor.

In addition, others may infringe or misappropriate our proprietary rights. We may have to institute costly legal action to protect our intellectual property rights, or we may not be able to afford the costs of enforcing or defending our intellectual property rights.

There could be significant litigation and other administrative proceedings in our industry that affect us regarding patent and other intellectual property rights. Any legal action or administrative action against us, or our collaborators, claiming damages or seeking to enjoin commercial activities relating to our research and development, manufacturing, and commercialization activities could:

- require us, or our collaborators, to obtain a license which may not be available on commercially reasonable terms, if at all;
- prevent us from importing, making, using, selling, or offering to sell the subject matter claimed in patents held by others and subject us to potential liability for damages;

- consume a substantial portion of our managerial, scientific, and financial resources; or
- be costly, regardless of the outcome.

Furthermore, because of the substantial amount of pre-trial document and witness discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised. In addition, during the course of intellectual property litigation, there could 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 a substantial adverse effect on the trading price of our common stock.

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

We have been contacted from time to time by third parties regarding their intellectual property rights, sometimes asserting that we may need a license to use their technologies. If we fail to obtain any required licenses or make any necessary changes to our technologies, we may become involved in expensive and time-consuming litigation or we may be unable to develop or commercialize some or all of our drugs or drug candidates.

We cannot predict the outcome of any litigation matter. For example, our existing patents could be invalidated, found unenforceable or found not to cover a generic form of our drugs.

We cannot protect our intellectual property rights throughout the world.

Filing, prosecuting, defending, and enforcing patents on all of our drug candidates throughout the world would be prohibitively expensive. The laws of some foreign countries do not protect intellectual property rights to the same extent as the laws of the United States, and many companies have encountered significant problems in protecting and defending such rights in foreign jurisdictions. Many countries, including certain countries in Europe, have compulsory licensing laws under which a patent owner may be compelled to grant licenses to third parties (for example, the patent owner has failed to "work" the invention in that country or the third party has patented improvements). In addition, many countries limit the enforceability of patents against government agencies or government contractors. In these countries, the patent owner may have limited remedies, which could materially diminish the value of the patent. Compulsory licensing of life-saving drugs is also becoming increasingly popular in developing countries either through direct legislation or international initiatives. Such compulsory licenses could be extended to include some of our drug candidates, which could limit our potential revenue opportunities. Moreover, the legal systems of certain countries, particularly certain developing countries, do not favor the aggressive enforcement of patents and other intellectual property protection, particularly those relating to pharmaceuticals, which makes it difficult for us to stop the infringement of our patents. Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial cost and divert our efforts and attention from other aspects of our business.

Risks Relating to Our Securities

*** Our stock price will likely be volatile, and your investment in our stock could decline in value.**

Our stock price has fluctuated historically. From January 1, 2020, to April 29, 2021, the market price of our stock was as low as $32.95 per share and as high as $90.19 per share. The stock market, particularly in recent years, has experienced significant volatility particularly with respect to pharmaceutical and biotechnology stocks, and this trend may continue. The ongoing COVID-19 pandemic, for example, has previously negatively affected the stock market and investor sentiment and has resulted in significant volatility, and the COVID-19 pandemic may have these effects in the future.

Very few drug candidates being tested will ultimately receive regulatory approval, and companies in our industry sometimes experience significant volatility in their stock price. Our stock price may fluctuate significantly depending on a variety of factors, including:

- results or decisions affecting the development or commercialization of any of our drug candidates or drugs, including the results of studies, trials and other analyses;
- the success, failure or setbacks of our or a perceived competitor's drugs or drug candidates;
- the timing of the development of our drug candidates;

- discussions or recommendations affecting our drugs or drug candidates by the FDA or other reviewers of preclinical or clinical data or other information related to our drug candidates or drugs;
- regulatory actions or decisions or legislation affecting drugs or drug candidates, including ours and those of our competitors;
- the commercial availability and success or failure of any of our drug candidates;
- the development and implementation of our continuing development and research plans;
- the entrance into, or failure to enter into, a new collaboration or the modification or termination of an existing collaboration or other material transaction;
- the timing and receipt by us of milestone and other payments or failing to achieve and receive the same;
- fluctuation in prescriptions, sales, or financial results (including with respect to revenue recognition, expenses, and other operating results) or inaccurate sales or cash forecasting;
- accounting restatements and changes;
- supply chain or manufacturing issues;
- changes in our research and development budget or the research and development budgets of our existing or potential collaborators;
- the introduction, development or withdrawal of drug candidates or drugs by others that target the same diseases and conditions that we or our collaborators target or the introduction of new drug discovery techniques;
- expenses related to, and the results of, litigation, other disputes and other proceedings;
- financing strategy or decisions;
- the allocation of our resources;
- our ability, or the perception by investors of our ability, to continue to meet all applicable requirements for continued listing of our common stock on The Nasdaq Stock Market, and the possible delisting of our common stock if we are unable to do so;
- developments in intellectual property rights or related announcements;
- disruptions caused by man-made or natural disasters or public health pandemics or epidemics or other business interruptions, including, for example, the COVID-19 pandemic; and
- capital market and other macroeconomic conditions.

We are not able to control many of these factors. If our financial or scientific results in a particular period do not meet stockholders' or analysts' expectations, our stock price may decline, and such decline could be significant.

*** Any future equity or debt issuances or other financing transactions may have dilutive or adverse effects on our existing stockholders.**

We have been opportunistic in our efforts to obtain cash, and we expect we will evaluate various funding alternatives from time to time. We may issue additional shares of common stock or convertible securities that could dilute your ownership in our company and may include terms that give new investors rights that are superior to yours. We have effective registration statements to sell shares of our common stock and certain other securities, and we may elect to sell shares pursuant to such registration from time to time. In February 2020, we entered into a sales agreement with Credit Suisse Securities (USA) LLC, SVB Leerink LLC and Cantor Fitzgerald & Co., pursuant to which we may sell and issue shares of our common stock having an aggregate offering price of up to $250.0 million from time to time in transactions that are deemed to be "at-the-market offering" as defined in Rule 415(a)(4) under the Securities Act. As of April 29, 2021, we have sold 1.2 million shares for aggregate gross proceeds of $100.6 million under the sales agreement and may sell and issue approximately $149.4 million in additional shares under the sales agreement.

Moreover, any issuances by us of equity securities may be at or below the prevailing market price of our common stock and in any event may have a dilutive impact on your ownership interest, which could cause the market price of our common stock to decline. In addition, we may also raise additional funds through the incurrence of debt or other financing transaction, and the investors may have rights superior to your rights in the event we are not successful and are forced to seek

the protection of bankruptcy laws or the transaction may otherwise adversely affect our business prospects and existing stockholders.

*** There are a substantial number of shares of our common stock that may become eligible for future sale in the public market, and the sale of our common stock could cause the market price of our common stock to fall.**

As of April 29, 2021, there were (i) options to purchase 8,877,847 shares of our common stock outstanding under our equity incentive plans at a weighted-average exercise price of $46.31 per share, (ii) 687,997 restricted stock unit awards outstanding under our equity incentive plans, (iii) performance restricted stock units outstanding under our equity incentive plans under which up to 397,030 shares of common stock may be issuable upon achievement of all specified performance goals, (iv) 915,410 additional shares of common stock remaining issuable under our Amended and Restated 2020 Long-Term Incentive Plan, and (v) 935,544 shares issuable under our 2019 Employee Stock Purchase Plan.

Once issued, the shares described above will be available for immediate resale in the public market. The market price of our common stock could decline as a result of such resales due to the increased number of shares available for sale in the market. As of April 29, 2021, there were 60,696,200 shares of our common stock outstanding.

Our executive officers and directors, and other holders of our common stock and other securities, may take actions that are contrary to your interests, including selling their stock.

Sales of our stock by our executive officers and directors, or the perception that such sales may occur, could adversely affect the market price of our stock. Our executive officers and directors may sell stock in the future, either as part, or outside, of trading plans under Rule 10b5-1 of the SEC.

A small number of stockholders may hold or acquire a significant amount of our outstanding stock. From time to time, there is a large short interest in our stock. These holders of such stock or positions may seek control of us, may support transactions that we or you do not believe are favorable, and may have interests that are different from yours. In addition, sales of a large number of shares of our stock by these large stockholders or other stockholders within a short period of time could adversely affect our stock price.

We may also be involved in disagreements with the holders of our stock, warrants, or other securities in the future. Such disagreements may lead to proxy contests or litigation, which may be expensive and consume management’s time, involve settlements, the terms of which may not be favorable to us, or result in other negative consequences to our business.

Certain of our agreements, provisions in our charter documents, possible future agreements and Delaware law could delay or prevent a change in management or a takeover attempt that you may consider to be in your best interests.

There is a standstill provision in our transaction agreement with Eisai, and we may enter into agreements with others that contain similar provisions. In addition, we may in the future adopt a stockholders’ rights agreement, which would cause substantial dilution to any person who attempts to acquire us in a manner or on terms not approved by our board of directors. These provisions or agreements, as well as other provisions in our certificate of incorporation and bylaws and under Delaware law, could delay or prevent the removal of directors and management and could make more difficult a merger, tender offer, or proxy contest involving us that you may consider to be in your best interests. For example, our charter provisions:

- allow our board of directors to issue preferred stock without stockholder approval;
- limit who can call a special meeting of stockholders;
- eliminate stockholder action by written consent; and
- establish advance notice requirements for nomination for election to the board of directors or for proposing matters to be acted upon at stockholders’ meetings.

Our bylaws provide that the Court of Chancery of the State of Delaware and the federal district courts of the United States of America are 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 bylaws provide that the Court of Chancery of the State of Delaware will be the exclusive forum for (a) any derivative action or proceeding brought on behalf of us, (b) any action asserting a claim of breach of a fiduciary duty owed by any of our directors or any of our officers or other employees to us or our stockholders, (c) any action asserting a claim against us or any of our directors or any of our officers or other employees arising pursuant to any provision of the Delaware General

Corporation Law, our certificate of incorporation or our bylaws, or (d) any action asserting a claim against us or any of our directors or any of our officers or other employee governed by the internal affairs doctrine. This provision does not apply to suits brought to enforce a duty or liability created by the Securities Act or 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 bylaws further provides that, unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States of America will be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act. While the Delaware courts have determined that such choice of forum provisions are facially valid, a stockholder may nevertheless seek to bring a claim in a venue other than those designated in the exclusive forum provisions. In such instance, we would expect to vigorously assert the validity and enforceability of the exclusive forum provisions of our bylaws. 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 bylaws 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

Laws, rules, and regulations, including relating to public companies, may be costly and impact our ability to attract and retain directors and executive officers.

Laws and regulations affecting public companies, including rules adopted by the SEC and by Nasdaq, judicial rulings, and other laws and regulations, including, for example, of state, federal, and foreign governments and relating to privacy, may result in increased costs to us, particularly as we continue to develop the required capabilities in the United States and abroad to develop and commercialize our product candidates. These laws, rules, and regulations could make it more difficult or costly for us to obtain certain types of insurance, including directors' and officers' liability insurance, and we may be forced to accept reduced policy limits and coverage or incur substantially higher costs to obtain the same or similar coverage. These laws, rules, and regulations could also make it more difficult for us to attract and retain qualified persons to serve on our board of directors, on our board committees, or as executive officers. We cannot estimate accurately the amount or timing of additional costs we may incur to respond to these laws, rules, and regulations.

Changes in funding for the FDA, the SEC, and other government agencies could hinder their ability to hire and retain key leadership and other personnel, prevent new products and services from being developed or commercialized in a timely manner, or otherwise prevent those agencies from performing normal functions on which the operation of our business may rely, 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 payment of user fees, and statutory, regulatory, and policy changes. Average review times at the agency have fluctuated in recent years as a result. In addition, government funding of the SEC and other government agencies on which our operations may rely, including those 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, the U.S. government has shut down several times and certain regulatory agencies, such as the FDA and the SEC, have had to furlough critical FDA, SEC, and other government 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. Further, future government shutdowns could impact our ability to access the public markets and obtain capital necessary to properly capitalize and continue our operations.

The withdrawal of the United Kingdom from the European Union, commonly referred to as "Brexit," may adversely impact our ability to obtain regulatory approvals of our product candidates in the European Union, result in restrictions or imposition of taxes and duties for importing our product candidates into the European Union, and may require us to incur additional expenses in order to develop, manufacture and commercialize our product candidates in the European Union.

Following the result of a referendum in 2016, the United Kingdom left the European Union on January 31, 2020, commonly referred to as "Brexit." Pursuant to the formal withdrawal arrangements agreed between the United Kingdom and the European Union, the United Kingdom was subject to a transition period that ended December 31, 2020, or the Transition Period, during which EU rules continued to apply. A trade and cooperation agreement, or the Trade and Cooperation Agreement, that outlines the future trading relationship between the United Kingdom and the European Union was agreed in December 2020.

Since a significant proportion of the regulatory framework in the United Kingdom applicable to our business and our product candidates is derived from EU directives and regulations, Brexit has had, and may continue to have, a material impact on the regulatory regime with respect to the development, manufacture, importation, approval and commercialization of our product candidates in the United Kingdom or the European Union. For example, Great Britain is no longer covered by the centralized procedures for obtaining EU-wide marketing authorization from the EMA and, and a separate marketing authorization will be required to marker our product candidates in Great Britain. It is currently unclear whether the Medicines & Healthcare products Regulatory Agency, or MHRA, in the U.K. is sufficiently prepared to handle the increased volume of marketing authorization applications that it is likely to receive.

While the Trade and Cooperation Agreement provides for the tariff-free trade of medicinal products between the UK and the EU there may be additional non-tariff costs to such trade which did not exist prior to the end of the Transition Period. Further, should the UK diverge from the EU from a regulatory perspective in relation to medicinal products, tariffs could be put into place in the future. We could therefore, both now and in the future, face significant additional expenses (when compared to the position prior to the end of the Transition Period) to operate our business, which could significantly and materially harm or delay our ability to generate revenues or achieve profitability of our business. Any further changes in international trade, tariff and import/export regulations as a result of Brexit or otherwise may impose unexpected duty costs or other non-tariff barriers on us. These developments, or the perception that any of them could occur, may significantly reduce global trade and, in particular, trade between the impacted nations and the UK It is also possible that Brexit may negatively affect our ability to attract and retain employees, particularly those from the EU. These developments, or the perception that any of them could occur, may significantly reduce global trade and, in particular, trade between the impacted nations and the United Kingdom.

*** Our employees, clinical trial investigators, CROs, CMOs, consultants, vendors, and collaborators may engage in misconduct or other improper activities, including noncompliance with regulatory standards and requirements and insider trading.**

We are exposed to the risk of fraud or other misconduct by our employees, clinical trial investigators, CROs, CMOs, consultants, vendors, and collaborators. Misconduct by these parties could include intentional, reckless and/or negligent conduct or disclosure of unauthorized activities to us that violates:

- FDA regulations or those of comparable foreign regulatory authorities, including those laws that require the reporting of true, complete and accurate information;
- manufacturing standards;
- federal and state health and data privacy, security, fraud and abuse, government price reporting, transparency reporting requirements, and other healthcare laws and regulations in the United States and abroad;
- sexual harassment and other workplace misconduct; or
- laws that require the true, complete, and accurate reporting of financial information or data.

Such misconduct could also involve the improper use of information obtained in the course of clinical trials, which could result in regulatory sanctions and cause serious harm to our reputation.

We have adopted a Code of Business Conduct and Ethics and other policies and procedures, but it is not always possible to identify and deter 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 governmental 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 significant impact on our business, including the imposition of significant civil, criminal, and administrative penalties, damages, fines, disgorgement, imprisonment, exclusion from government funded healthcare programs, such as Medicare, Medicaid, and other federal healthcare programs, contractual damages, reputational harm, diminished profits and future earnings, additional integrity reporting and oversight obligations, 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.

Our disclosure controls and procedures and our internal control over financial reporting may not prevent potential errors and fraud.

Our management does not expect that our disclosure controls and procedures or our internal control over financial reporting will prevent all potential errors and fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. There are inherent limitations in all control systems, and no system of controls can provide absolute assurance that all control issues and instances of fraud, if any, or misstatements due to error, if any, within the company have been detected. While we believe that our disclosure controls and procedures and internal control over financial reporting are and have been effective at the reasonable assurance level, we intend to continue to examine and refine our disclosure controls and procedures and internal control over financial reporting and to monitor ongoing developments in these areas.

*** Current and future tax laws and regulations could adversely affect our business and financial condition.**

New income, sales, use or other tax laws, statutes, rules, regulations or ordinances could be enacted at any time, which could affect the tax treatment of our domestic and foreign earnings. Any new taxes could adversely affect our domestic and international business operations, and our business and financial performance. Further, existing tax laws, statutes, rules, regulations or ordinances could be interpreted, changed, modified or applied adversely to us. For example, the TCJA significantly revised the IRC. Future guidance from the Internal Revenue Service and other tax authorities with respect to the TCJA may affect us, and certain aspects of the TCJA could be repealed or modified in future legislation. For example, the CARES Act modified certain provisions of the TCJA. In addition, it is uncertain if and to what extent various states will conform to the TCJA, the CARES Act, or any newly U.S. enacted federal tax legislation. Changes in corporate tax rates, the realization of net deferred tax assets relating to our operations, the taxation of foreign earnings, and the deductibility of expenses under the TCJA or future reform legislation could have a material impact on the value of our deferred tax assets, could result in significant one-time charges, and could increase our future U.S. tax expense.

We have an international corporate structure and intercompany arrangements that include licensing of worldwide intellectual property rights related to certain of our drug candidates to one or more wholly owned subsidiaries in order to, among other things, build a platform for long-term operational and financial efficiencies. One such efficiency is the potential reduction of our worldwide effective tax rate on certain potential future revenues. The application of the tax laws of the jurisdictions in which we operate our international business activities is subject to interpretation and depends on our ability to operate our business in a manner consistent with our corporate structure and intercompany arrangements. Future changes in U.S. and non-U.S. tax laws, including implementation of international tax reform relating to the tax treatment of multinational corporations, if enacted, may reduce or eliminate any potential financial efficiencies that we hoped to achieve by establishing this operational structure. Additionally, taxing authorities, such as the U.S. Internal Revenue Service, may audit and otherwise challenge these types of arrangements, and have done so with other companies in the pharmaceutical industry. If any such changes in tax law are enacted, or our international corporate structure and intercompany arrangements are otherwise challenged, our business could be materially adversely impacted.

Changes or modifications in financial accounting standards, including those related to revenue recognition, may harm our results of operations.

From time to time the Financial Accounting Standards Board, or FASB, either alone or jointly with other organizations, promulgates new accounting principles that could have an adverse impact on our financial position, results of operations, or reported cash flows. Any difficulties in adopting or implementing any new accounting standard, or updating or modifying our internal controls as needed on a timely basis, could result in our failure to meet our financial reporting obligations, which could result in regulatory discipline and harm investors' confidence in us. In addition, if we were to change our critical accounting estimates, including those related to the recognition of revenue, our operating results could be significantly affected.

Item 6. Exhibits.

EXHIBIT NO	DESCRIPTION
3.1	Fifth Amended and Restated Certificate of Incorporation of Arena (incorporated by reference to Exhibit 3.1 to Arena's quarterly report on Form 10-Q for the quarter ended June 30, 2002, filed with the Securities and Exchange Commission on August 14, 2002, Commission File No. 000-31161)
3.2	Certificate of Amendment of the Fifth Amended and Restated Certificate of Incorporation of Arena (incorporated by reference to Exhibit 4.2 to Arena's registration statement on Form S-8 filed with the Securities and Exchange Commission on June 28, 2006, Commission File No. 333-135398)
3.3	Certificate of Amendment No. 2 of the Fifth Amended and Restated Certificate of Incorporation of Arena, as amended (incorporated by reference to Exhibit 4.3 to Arena's registration statement on Form S-8 filed with the Securities and Exchange Commission on June 30, 2009, Commission File No. 333-160329)
3.4	Certificate of Amendment No. 3 of the Fifth Amended and Restated Certificate of Incorporation of Arena, as amended (incorporated by reference to Exhibit 3.4 to Arena's registration statement on Form S-8 filed with the Securities and Exchange Commission on June 20, 2012, Commission File No. 333-182238)
3.5	Certificate of Amendment No. 4 of the Fifth Amended and Restated Certificate of Incorporation of Arena, as amended (incorporated by reference to Exhibit 3.1 to Arena's current report on Form 8-K filed with the Securities and Exchange Commission on June 15, 2017, Commission File No. 000-31161)
3.6	Certificate of Amendment No. 5 of the Fifth Amended and Restated Certificate of Incorporation of Arena, as amended (incorporated by reference to Exhibit 3.1 to Arena's current report on Form 8-K filed with the Securities and Exchange Commission on June 16, 2020, Commission File No. 000-31161)
3.7	Amended and Restated Bylaws of Arena (incorporated by reference to Exhibit 3.2 to Arena's current report on Form 8-K filed with the Securities and Exchange Commission on June 16, 2020, Commission File No. 000-31161)
4.1	Form of common stock certificate (incorporated by reference to Exhibit 4.7 to Arena's registration statement on Form S-8, filed with the Securities and Exchange Commission on June 22, 2017, Commission File No. 333-218905)
10.1*	Arena's Amended and Restated 2020 Long-Term Incentive Plan, amended as of April 13, 2021
10.2*	Form of Performance Restricted Stock Unit Grant Agreement under the Arena Pharmaceuticals, Inc. Amended and Restated 2020 Long-Term Incentive Plan (incorporated by reference to Exhibit 10.50 to Arena's annual report on Form 10-K for the year ended December 31, 2020, filed with the Securities and Exchange Commission on February 23, 2021, Commission File No. 000-31161)
31.1	Certification of principal executive officer pursuant to Rule 13a-14(A) promulgated under the Securities Exchange Act of 1934
31.2	Certification of principal financial officer pursuant to Rule 13a-14(A) promulgated under the Securities Exchange Act of 1934
32.1	Certification of principal executive officer and principal financial officer pursuant to 18 U.S.C. Section 1350 and Rule 13a-14(B) promulgated under the Securities Exchange Act of 1934
101.INS	Inline XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document
101.SCH	Inline XBRL Taxonomy Extension Schema Document
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document
104	Cover Page Interactive Data File (formatted as inline XBRL with applicable taxonomy extension information contained in Exhibit 101. INS)

* Management contract or compensatory plan

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

Date: May 5, 2021

ARENA PHARMACEUTICALS, INC.

By: /s/ Amit D. Munshi

Amit D. Munshi

President and Chief Executive Officer (principal executive officer)

By: /s/ Laurie D. Stelzer

Laurie D. Stelzer

Executive Vice President and Chief Financial Officer (principal financial and accounting officer)

ARENA PHARMACEUTICALS, INC.
AMENDED AND RESTATED 2020 LONG-TERM INCENTIVE PLAN

Arena Pharmaceuticals, Inc. (the "Company"), a Delaware corporation, hereby adopts the following Amended and Restated 2020 Long-Term Incentive Plan which amends and restates the terms of the Company's 2020 Long-Term Incentive Plan that was previously in effect (the "Plan") effective as of the Effective Date set forth in Section 13.13.

1. PURPOSE OF THE PLAN

The purpose of the Plan is to assist the Company and its Affiliates in attracting and retaining employees, directors, consultants and advisors of the Company and its Affiliates who are expected to contribute to the Company's success and achieve long-term objectives that will benefit the stockholders of the Company through the additional incentives inherent in the Awards hereunder.

2. DEFINITIONS

2.1. "*2017 LTIP*" shall mean the Company's 2017 Long-Term Incentive Plan, as amended and/or restated from time to time.

2.2. "*Affiliate*" shall mean, at the time of determination, any "parent" or "subsidiary" of the Company as such terms are defined in Rule 405 of the Securities Act. The Board or the Committee shall have the authority to determine the time or times at which "parent" or "subsidiary" status is determined within the foregoing definition.

2.3. "*Award*" shall mean any Option, Stock Appreciation Right, Restricted Stock Award, Restricted Stock Unit Award, Performance Award or any other right, interest or option relating to Shares or other property (including cash) granted pursuant to the provisions of the Plan.

2.4. "*Award Agreement*" shall mean any written agreement, contract or other instrument or document evidencing any Award granted hereunder, including through an electronic medium.

2.5. "*Board*" shall mean the Board of Directors of the Company.

2.6. "*Cause*" shall mean, unless otherwise provided in an Award Agreement or another agreement between the Participant and the Company or an Affiliate or a plan maintained by the Company or an Affiliate in which the Participant participates, a determination by the Committee that the Participant has breached his or her employment or service contract with the Company, or has been engaged in disloyalty to the Company, including, without limitation, fraud, embezzlement, theft, commission of a felony or proven dishonesty in the course of his or her employment or service, or has disclosed trade secrets or confidential information of the Company to persons not entitled to receive such information, or has breached any written noncompetition or nonsolicitation agreement between the Participant and the Company or has engaged in such other behavior detrimental to the interests of the Company as the Committee determines in its sole discretion. Any determination of "cause" for the purposes of outstanding Awards held by such Participant shall have no effect upon any determination of the rights or obligations of the Company or such Participant for any other purpose. Notwithstanding the foregoing, neither this provision nor the Plan is intended to, and neither shall be interpreted in a manner that limits or restricts a participant from exercising any legally protected whistleblower rights (including pursuant to Rule 21F under the Securities Exchange Act of 1934).

2.7. "*Code*" shall mean the Internal Revenue Code of 1986, as amended from time to time.

2.8. "*Committee*" shall mean the Compensation Committee of the Board or a subcommittee thereof formed by the Compensation Committee to act as the Committee hereunder. The Committee shall consist of no fewer than two Directors, each of whom is (i) a "Non-Employee Director" within the meaning of Rule 16b-3 of the Exchange Act, and (ii) an "independent director" for purpose of the rules of the Nasdaq Stock Market (or such other principal U.S. national securities exchange on which the Shares are traded) to the extent required by such rules.

2.9. "*Consultant*" shall mean any consultant or advisor who is a natural person and who provides services to the Company or any Affiliate, so long as such person (i) renders bona fide services that are not in connection with the offer and sale of the Company's securities in a capitalraising transaction and (ii) does not directly or indirectly promote or maintain a market for the Company's securities.

2.10. "*Director*" shall mean a non-employee member of the Board.

2.11. "*Dividend Equivalents*" shall have the meaning set forth in Section 12.5.

2.12. "*Effective Date*" shall have the meaning set forth in Section 13.13.

2.13. "*Employee*" shall mean any employee of the Company or any Affiliate and any prospective employee conditioned upon, and effective not earlier than, such person becoming an employee of the Company or any Affiliate.

2.14. "*Exchange Act*" shall mean the Securities Exchange Act of 1934, as amended.

2.15. "*Fair Market Value*" shall mean, with respect to Shares as of any date, (i) the per Share closing price of the Shares as reported on the Nasdaq Stock Market on that date (or if there was no reported closing price on such date, on the last preceding date on which the closing price was reported), (ii) if the Shares are not then listed on the Nasdaq Stock Market, the closing price on such other principal U.S. national securities exchange on which the Shares are listed (or if there was no reported closing price on such date, on the last preceding date on which the closing price was reported); or (iii) if the Shares are not listed on a U.S. national securities exchange, the Fair Market Value of Shares shall be determined by the Committee in its sole discretion using appropriate criteria. The Fair Market Value of any property other than Shares shall mean the market value of such property determined by such methods or procedures as shall be established from time to time by the Committee.

2.16. "*Incentive Stock Option"* shall mean an Option which when granted is intended to be, and qualifies as, as an incentive stock option for purposes of Section 422 of the Code.

2.17. *Inducement Award*" shall mean an Award that is granted pursuant to Section 3.3 of the Plan.

2.18. "*Inducement Award Rules*" shall mean Nasdaq Listing Rule 5635(c)(4), the related guidance under Nasdaq IM 5635-1 and any successor rule or guidance.

2.19. "*Inducement Shares*" shall have the meaning set forth in Section 3.3.

2.20. "*Option*" shall mean any right granted to a Participant under the Plan allowing such Participant to purchase Shares at such price or prices and during such period or periods as the Committee shall determine.

2.21. "*Participant*" shall mean an Employee, Director or Consultant who is selected by the Committee to receive an Award under the Plan.

2.22. "*Payee*" shall have the meaning set forth in Section 13.1.

2.23. "*Performance Award*" shall mean any Award of Performance Cash, Performance Shares or Performance Units granted pursuant to Article 9.

2.24. "*Performance Cash"* shall mean any cash incentives granted pursuant to Article 9 payable to the Participant upon the achievement of such performance goals as the Committee shall establish.

2.25. "*Performance Period*" shall mean that period established by the Committee at the time any Performance Award is granted or at any time thereafter during which any performance goals specified by the Committee with respect to such Award are to be measured.

2.26. "*Performance Share*" shall mean any grant pursuant to Article 9 of a unit valued by reference to a designated number of Shares, which value may be paid to the Participant by delivery of such property as the Committee shall determine, including cash, Shares, other property, or any combination thereof, upon achievement of such performance goals during the Performance Period as the Committee shall establish.

2.27. "*Performance Unit*" shall mean any grant pursuant to Section 9 of a unit valued by reference to a designated amount of property other than Shares (or cash), which value may be paid to the Participant by delivery of such property as the Committee shall determine, including cash, Shares, other property, or any combination thereof, upon achievement of such performance goals during the Performance Period as the Committee shall establish.

2.28. "*Permitted Assignee*" shall have the meaning set forth in Section 12.3.

2.29. "*Prior Plan Award*" shall mean an award granted under Section 3.1 of the 2017 LTIP or granted under any of the other Prior Plans.

2.30. "*Prior Plans*" shall mean, collectively, the Company's 2009 Long-Term Incentive Plan, 2012 Long-Term Incentive Plan, 2013 Long-Term Incentive Plan, and 2017 Long-Term Incentive Plan, each as amended and/or restated. Awards granted under the Prior Plans continue to be governed under the terms of those Prior Plans.

2.31. "*Prior Plans Returning Shares*" means any Shares subject to a Prior Plan Award that after March 31, 2020, is forfeited, or expires or otherwise terminates without the issuance of Shares, or is settled for cash (in whole or in part) or otherwise does not result in the issuance of all or a portion of the Shares subject to such Prior Plan Award, to the extent of such forfeiture, expiration or cash settlement; as well as Shares that are, after March 31, 2020, tendered by the Participant or withheld by the Company in payment of the purchase price of an option that is a Prior Plan Award, or Shares that are, after March 31, 2020, used to satisfy any tax withholding obligation with respect to a Prior Plan Award.

2.32. "*Restricted Stock*" shall mean any Share issued with the restriction that the holder may not sell, transfer, pledge or assign such Share and with such other restrictions as the Committee, in its sole discretion, may impose (including any restriction on the right to vote such Share and the right to receive any dividends), which restrictions may lapse separately or in combination at such time or times, in installments or otherwise, as the Committee may deem appropriate.

2.33. "*Restricted Stock Award*" shall have the meaning set forth in Section 7.1.

2.34. "*Restricted Stock Unit Award*" shall have the meaning set forth in Section 8.1.

2.35. "*Restricted Stock Unit"* means an Award that is valued by reference to a Share, which value may be paid to the Participant by delivery of cash, Shares or such other property as the Committee shall determine, which restrictions may lapse separately or in combination at such time or times, in installments or otherwise, as the Committee may deem appropriate.

2.36. "*Shares*" shall mean the shares of common stock, $0.0001 par value, of the Company.

2.37. "*Stock Appreciation Right*" shall mean the right granted to a Participant pursuant to Section 6.

2.38. "*Substitute Awards*" shall mean Awards granted or Shares issued by the Company in assumption of, or in substitution or exchange for, awards previously granted, or the right or obligation to make future awards, in each case by a company acquired by the Company or any Affiliate or with which the Company or any Affiliate combines.

2.39. "*Vesting Period*" shall mean the period of time specified by the Committee during which vesting restrictions for an Award are applicable.

3. SHARES SUBJECT TO THE PLAN

3.1. Number of Shares.

(a) Subject to adjustment as provided in Section 3.1(b) and Section 12.2, as of the Effective Date, a total of 1,887,250 Shares may be issued pursuant to Awards granted under the Plan, less one (1) Share for every one (1) Share that was subject to an award granted under Section 3.1 of the 2017 LTIP after March 31, 2020, and prior to the Effective Date.

After the Effective Date, no awards may be granted under the Prior Plans. Any Shares that are subject to Awards granted under the Plan after the Effective Date shall be counted against the limit in this Section 3.1(a) as one (1) Share for every one (1) Share granted, subject to the provisions of Section 3.1(b) below.

(b) If any Shares subject to an Award are forfeited, an Award expires or otherwise terminates without issuance of Shares, or an Award is settled for cash (in whole or in part) or otherwise does not result in the issuance of all or a portion of the Shares subject to such Award (including on payment in Shares on exercise of a Stock Appreciation Right), the Shares subject to such Award shall, to the extent of such forfeiture, expiration or cash settlement, again be available for Awards under the Plan, on a one-for-one basis. In the event that Shares tendered by the Participant or withheld by the Company in payment of the purchase price of an Option, or to satisfy any tax withholding obligation with respect to any Award, then in each such case the Shares so tendered or withheld shall be added to the Shares available for grant under the Plan on a one-for-one basis. In addition, any Shares that become Prior Plans Returning Shares shall also become available for Awards under the Plan, on a one-for-one-basis.

(c) Shares issued under Substitute Awards that qualify for an exemption from the applicable stockholder-approval requirements under Nasdaq Listing Rule 5635(c) or its successor shall not reduce the Shares authorized for grant under the Plan, nor shall Shares subject to a Substitute Award again be available for Awards under the Plan to the extent of any forfeiture, expiration or cash settlement as provided in paragraph (b) above.

3.2. *Character of Shares*. Any Shares issued hereunder may consist, in whole or in part, of authorized and unissued shares, treasury shares or shares purchased in the open market or otherwise. The Company will keep available at all times the number of Shares reasonably required to satisfy then-outstanding Awards.

3.3. *Inducement Share Pool and Inducement Award Rules*. Subject to adjustment as provided under Section 12.2., an additional 777,565 Shares are reserved under the Plan exclusively for the grant of Inducement Awards in compliance with the Inducement Award Rules (the "*Inducement Shares*"). The Inducement Shares that may be awarded under this Section 3.3 shall be in addition to and shall not reduce the Shares available for issuance under Section 3.1(a) of the Plan.

The following rules and restrictions shall apply to any Inducement Award granted pursuant to the Plan:

(a) An Inducement Award may be granted only to an Employee who has not previously been an Employee or a Director of the Company or an Affiliate, except following a bona fide period of non-employment, as an inducement material to the individual's entering into employment with the Company within the meaning of the Inducement Award Rules.

(b) No Inducement Award may be designated as an Incentive Stock Option.

(c) All Inducement Awards must be granted by a Committee consisting of the majority of the Company's independent directors or the Company's Compensation Committee, in each case in accordance with the requirements of the Inducement Award Rules.

(d) The Inducement Shares underlying any Inducement Awards shall be subject to the same share counting and share reversion provisions as described in Section 3.1, except that such Inducement Shares shall count against, or shall be added back to, the reserve of Inducement Shares available for grant under this Section 3.3, and shall not count against, or be added back to, the Shares available for issuance under Section 3.1(a) of the Plan.

(e) Inducement Awards shall not be amended without stockholder approval to the extent required by the Inducement Award Rules.

3.4. *Non-Employee Director Aggregate Compensation Limit.* The aggregate value of all compensation granted or paid, as applicable, to any individual for service as a Director with respect to any period commencing on the date of the Company's annual meeting of stockholders for a particular year and ending on the day immediately prior to the date of the Company's annual meeting of stockholders for the next subsequent year, including Awards granted and cash fees paid or payable by the Company to such Director, will not exceed (i) $750,000 in total value or (ii) in the event such Director is first appointed or elected to the Board during such period, or with respect to a lead director or chairman role $1,000,000 in total value, in each case calculating the value of any Awards based on the grant date fair value of such Awards for financial reporting purposes. For the avoidance of doubt, any compensation shall be counted towards this limit for the service year in which it is earned (and not when settled or paid in the event it is deferred).

4. ELIGIBILITY AND ADMINISTRATION

4.1. *Eligibility*. Any Employee, Director or Consultant shall be eligible to be selected as a Participant.

4.2. Administration.

(a) The Plan shall be administered by the Committee. The Committee shall have full power and authority, subject to the provisions of the Plan and subject to such orders or resolutions not inconsistent with the provisions of the Plan as may from time to time be adopted by the Board, to: (i) select the Employees, Directors and Consultants to whom Awards may from time to time be granted hereunder; (ii) determine the type or types of Awards, not inconsistent with the provisions of the Plan, to be granted to each Participant hereunder; (iii) determine the number of Shares (or dollar value) to be covered by each Award granted hereunder; (iv) determine the terms and conditions, not inconsistent with the provisions of the Plan, of any Award granted hereunder (including the power to amend outstanding Awards waive or accelerate any vesting terms or restrictions, subject to any stockholder approval requirement applicable under the Inducement Award Rules for amendment of an Inducement Award); (v) determine whether, to what extent and under what circumstances Awards may be settled in cash, Shares or other property; (vi) determine whether, to what extent, and under what circumstances cash, Shares, other property and other amounts payable with respect to an Award made under the Plan shall be deferred either automatically or at the election of the Participant; (vii) determine whether, to what extent and under what circumstances any Award shall be canceled or suspended; (viii) interpret and administer the Plan and any instrument or agreement entered into under or in connection with the Plan, including any Award Agreement; (ix) correct any defect, supply any omission or reconcile any inconsistency in the Plan or any Award in the manner and to the extent that the Committee shall deem desirable to carry it into effect; (x) establish such rules and regulations and appoint such agents as it shall deem appropriate for the proper administration of the Plan; (xi) determine whether any Award, other than an Option or Stock Appreciation Right, will have Dividend Equivalents; and (xii) make any other determination and take any other action that the Committee deems necessary or desirable for administration of the Plan.

(b) Decisions of the Committee shall be final, conclusive and binding on all persons or entities, including the Company, any Participant, and any Affiliate. A majority of the members of the Committee may determine its actions, including fixing the time and place of its meetings.

(c) To the extent not inconsistent with applicable law, including the Delaware General Corporation Law, or the rules and regulations of the Nasdaq Stock Market (or such other principal U.S. national securities exchange on which the Shares are traded) including Inducement Award Rules, the Committee may delegate to: (i) a committee of one or more members of the Board the authority to take action on behalf of the Committee under the Plan including the right to grant, cancel, suspend or amend Awards and (ii) one or more "executive officers" within the meaning of Rule 16a-1(f) of the Exchange Act or a committee of executive officers the right to grant Awards to Employees who are not executive officers of the Company (provided that the Committee resolutions regarding such delegation will specify the total number of Shares that may be subject to the Awards granted by such person or persons) and the authority to take action on behalf of the Committee pursuant to the Plan to cancel or suspend Awards to Employees who are not directors or executive officers of the Company.

(d) The Board in its discretion may ratify and approve actions taken by the Committee. In addition, to the extent not inconsistent with applicable law or the rules and regulations of the Nasdaq Stock Market or such other principal U.S. national securities exchange on which the Shares are traded, the Board may take any action under the Plan that the Committee is authorized to take. In the event the Board takes such action references to the Committee hereunder shall be understood to refer to the Board.

5. OPTIONS

5.1. *Grant of Options*. Options may be granted hereunder to Participants either alone or in addition to other Awards granted under the Plan. Any Option shall be subject to the terms and conditions of this Article and to such additional terms and conditions, not inconsistent with the provisions of the Plan, as the Committee shall deem desirable.

5.2. *Award Agreements*. All Options granted pursuant to this Article shall be evidenced by a written Award Agreement in such form and containing such terms and conditions as the Committee shall determine which are not inconsistent with the provisions of the Plan. The terms of Options need not be the same with respect to each Participant. Granting an Option pursuant to the Plan shall impose no obligation on the recipient to exercise such Option. Any individual who is granted an Option pursuant to this Article may hold more than one Option granted pursuant to the Plan at the same time.

5.3. *Option Price*. Other than in connection with Substitute Awards, the option price per each Share purchasable under any Option granted pursuant to this Article shall not be less than 100% of the Fair Market Value of one Share on the date of grant of such Option; provided, however, that in the case of an Incentive Stock Option granted to a Participant who, at the time of the grant, owns stock representing more than 10% of the voting power of all classes of stock of the Company or any Affiliate, the option price per share shall be no less than 110% of the Fair Market Value of one Share on the date of grant. Other than pursuant to Section 12.2, the Committee shall not without the approval of the Company's stockholders (a) lower the option price per Share of an Option after it is granted, (b) cancel an Option when the option price per Share exceeds the Fair Market Value of one Share in exchange for cash or another Award (other than in connection with a Change in Control as defined in Section 11.3 or Substitute Awards), and (c) take any other action with respect to an Option that would be treated as a repricing under the rules and regulations of the Nasdaq Stock Market (or such other principal U.S. national securities exchange on which the Shares are traded).

5.4. *Option Term*. The term of each Option shall be fixed by the Committee in its sole discretion; provided that no Option shall be exercisable after the expiration of seven (7) years from the date the Option is granted, except in the event of death or disability; provided, however, that the term of the Option shall not exceed five (5) years from the date the Option is granted in the case of an Incentive Stock Option granted to a Participant who, at the time of the grant, owns stock representing more than 10% of the voting power of all classes of stock of the Company or any Affiliate.

5.5. *Exercise of* Options.

(a) Vested Options granted under the Plan may be exercised by the Participant or by a Permitted Assignee thereof (or by the Participant's executors, administrators, guardian or legal representative, as may be provided in an Award Agreement) as to all or part of the Shares covered thereby, by the giving of notice of exercise to the Company or its designated agent, specifying the number of Shares to be purchased. The notice of exercise shall be in such form, made in such manner, and shall comply with such other requirements consistent with the provisions of the Plan as the Committee may from time to time prescribe.

(b) Unless otherwise provided in an Award Agreement, full payment of such purchase price shall be made at the time of exercise and shall be made (i) in cash or cash equivalents (including certified check or bank check or wire transfer of immediately available funds), (ii) by tendering previously acquired Shares (either actually or by attestation), valued at their then Fair Market Value, (iii) with the consent of the Committee, by delivery of other consideration (including, where permitted by law and the Committee, other Awards) having a Fair Market Value on the exercise date equal to the total purchase price, (iv) with the consent of the Committee, by withholding Shares otherwise issuable in connection with the exercise of the Option, (v) through any other method specified in an Award Agreement (including same-day sales through a broker), or (vi) any combination of any of the foregoing. In no event may any Option granted hereunder be exercised for a fraction of a Share. No adjustment shall be made for cash dividends or other rights for which the record date is prior to the date of such issuance.

(c) Notwithstanding the foregoing, an Award Agreement may provide that if on the last day of the term of an Option the Fair Market Value of one Share exceeds the option price per Share, the Participant has not exercised the Option and the Option has

not expired, the Option shall be deemed to have been exercised by the Participant on such day with payment made by withholding Shares otherwise issuable in connection with the exercise of the Option. In such event, the Company shall deliver to the Participant the number of Shares for which the Option was deemed exercised, less the number of Shares required to be withheld for the payment of the total purchase price and required withholding taxes (in accordance with Section 13.1); provided, however, any fractional Share shall be settled in cash.

(d) No Option granted to an Employee who is a non-exempt employee for purposes of the Fair Labor Standards Act of 1938, as amended, shall be first exercisable for any Shares until at least six months following the date of grant of the Option. Notwithstanding the foregoing, consistent with the provisions of the Worker Economic Opportunity Act, (i) in the event of the Employee's death or disability, (ii) upon a corporate transaction in which such Option is not assumed, continued, or substituted, (iii) upon a Change in Control, or (iv) upon the Employee's retirement (as such term may be defined in the Employee's Award Agreement or in another applicable agreement or in accordance with the Company's then current employment policies and guidelines), any such vested Options may be exercised earlier than six months following the date of grant. The foregoing provision is intended to operate so that any income derived by a non-exempt employee in connection with the exercise or vesting of an Option will be exempt from his or her regular rate of pay.

5.6. *Form of Settlement*. In its sole discretion, the Committee may provide in the form of Award Agreement that the Shares to be issued upon an Option's exercise shall be in the form of Restricted Stock or other similar securities.

5.7. *Incentive Stock Options*. The Committee may grant Options intended to qualify as "incentive stock options" as defined in Section 422 of the Code, to any employee of the Company or any Affiliate, subject to the requirements of Section 422 of the Code; provided, however, that "incentive stock options" may not be granted as Inducement Awards. Notwithstanding anything in Section 3.1 to the contrary and solely for the purposes of determining whether Shares are available for the grant of "incentive stock options" under the Plan, the maximum aggregate number of Shares that may be issued pursuant to "incentive stock options" granted under the Plan is 1,887,250 Shares less the number of Shares issued pursuant to "incentive stock options" granted under the Prior Plans after March 31, 2020, and prior to the Effective Date, subject to adjustment as provided in Section 12.2.

5.8. *Extension of Termination Date.* Unless otherwise provided in a Participant's Award Agreement and in the sole determination of the Committee, if the sale of any Common Stock received on exercise of an Option following the termination of the Participant's employment by or services to the Company (other than for Cause) would be prohibited at any time solely because the issuance of Shares would violate (i) the registration requirements under the Securities Act, (ii) the Company's insider trading policy, or (iii) a "lock-up" agreement undertaken in connection with an issuance of securities by the Company, then the Option will terminate on the earlier of (a) the expiration of a total period of 90 days (that need not be consecutive) after the termination of the Participant's employment by or services to the Company during which the exercise of the Option would not be in violation of any of such registration requirement, insider trading policy or lock-up agreement, and (b) the expiration of the term of the Option as set forth in the applicable Award Agreement.

6. STOCK APPRECIATION RIGHTS

6.1. *Grant and Exercise*. The Committee may provide Stock Appreciation Rights (a) in conjunction with all or part of any Option granted under the Plan or at any subsequent time during the term of such Option, (b) in conjunction with all or part of any Award (other than an Option) granted under the Plan or at any subsequent time during the term of such Award, or (c) without regard to any Option or other Award, in each case upon such terms and conditions as the Committee may establish in its sole discretion.

6.2. *Terms and Conditions*. Stock Appreciation Rights shall be subject to such terms and conditions, not inconsistent with the provisions of the Plan, as shall be determined from time to time by the Committee, including the following:

(a) Upon the exercise of a Stock Appreciation Right, the holder shall have the right to receive the excess of (i) the Fair Market Value of one Share on the date of exercise (or such amount less than such Fair Market Value as the Committee shall so determine at any time during a specified period before the date of exercise) over (ii) the grant price of the Stock Appreciation Right.

(b) Upon the exercise of a Stock Appreciation Right, the Committee shall determine in its sole discretion whether payment shall be made in cash, in whole Shares or other property, or any combination thereof.

(c) The terms and conditions of Stock Appreciation Rights need not be the same with respect to each recipient.

(d) The Committee may impose such other conditions on the exercise of any Stock Appreciation Right, as it shall deem appropriate. A Stock Appreciation Right shall have (i) a grant price per Share of not less than the Fair Market Value of one Share (x) on the date of grant or (y) if applicable, on the date of grant of an Option with respect to a Stock Appreciation Right granted in exchange for or in tandem with, but subsequent to, the Option (subject to the requirements of Section 409A of the Code with respect to a Stock Appreciation Right granted in exchange for or in conjunction with, but subsequent to, an Option), except in the case of Substitute Awards or in connection with an adjustment provided in Section 12.2, and (ii) a term not greater than seven (7) years. In addition to the foregoing, but subject to Section 12.2, the Committee shall not without the approval of the Company's stockholders (x) lower the grant price per Share of any Stock Appreciation Right after it is granted, (y) cancel any Stock Appreciation Right when the grant price per Share exceeds the Fair Market Value of the underlying Shares in exchange for cash or another Award (other than in connection with a Change in Control as defined in Section 11.3 or Substitute Awards), and (z) take any other action with respect to

any Stock Appreciation Right that would be treated as a repricing under the rules and regulations of the Nasdaq Stock Market (or such other principal U.S. national securities exchange on which the Shares are traded).

(e) In no event may any Stock Appreciation Right granted hereunder be exercised for a fraction of a Share. No adjustment shall be made for cash dividends or other rights for which the record date is prior to the date of such issuance.

(f) An Award Agreement may provide that if on the last day of the term of a Stock Appreciation Right the Fair Market Value of one Share exceeds the grant price per Share of the Stock Appreciation Right, the Participant has not exercised the Stock Appreciation Right or the tandem Option (if applicable), and neither the Stock Appreciation Right nor the Option has expired, the Stock Appreciation Right shall be deemed to have been exercised by the Participant on such day. In such event, the Company shall make payment to the Participant in accordance with this Section, reduced by the number of Shares (or cash) required for withholding taxes (in accordance with Section 13.1); any fractional Share shall be settled in cash.

(g) No Stock Appreciation Right granted to an Employee who is a non-exempt employee for purposes of the Fair Labor Standards Act of 1938, as amended, shall be first exercisable for any Shares until at least six months following the date of grant of the Stock Appreciation Right. Notwithstanding the foregoing, consistent with the provisions of the Worker Economic Opportunity Act, (i) in the event of the Employee's death or disability, (ii) upon a corporate transaction in which such Stock Appreciation Right is not assumed, continued, or substituted, (iii) upon a Change in Control, or (iv) upon the Employee's retirement (as such term may be defined in the Employee's Award Agreement or in another applicable agreement or in accordance with the Company's then current employment policies and guidelines), any such vested Stock Appreciation Rights may be exercised earlier than six months following the date of grant. The foregoing provision is intended to operate so that any income derived by a non-exempt employee in connection with the exercise or vesting of a Stock Appreciation Right will be exempt from his or her regular rate of pay.

(h) *Extension of Termination Date.* Unless otherwise provided in a Participant's Award Agreement and in the sole determination of the Committee, if the sale of any Common Stock received on exercise of a Stock Appreciation Right following the termination of the Participant's employment by or services to the Company (other than for Cause) would be prohibited at any time solely because the issuance of Shares would violate (i) the registration requirements under the Securities Act, (ii) the Company's insider trading policy, or (iii) a "lock-up" agreement undertaken in connection with an issuance of securities by the Company, then the Stock Appreciation Right will terminate on the earlier of (a) the expiration of a total period of 90 days (that need not be consecutive) after the termination of the Participant's employment by or services to the Company during which the exercise of the Stock Appreciation Right would not be in violation of any of such registration requirement, insider trading policy or lock-up agreement, and (b) the expiration of the term of the Stock Appreciation Right as set forth in the applicable Award Agreement.

7. RESTRICTED STOCK AWARDS

7.1. *Grants*. Awards of Restricted Stock may be issued hereunder to Participants either alone or in addition to other Awards granted under the Plan (a "Restricted Stock Award"), and such Restricted Stock Awards may also be available as a form of payment of Performance Awards and other earned cash-based incentive compensation. A Restricted Stock Award shall be subject to vesting restrictions imposed by the Committee covering a period of time specified by the Committee. The Committee has absolute discretion to determine whether any consideration (other than services) is to be received by the Company or any Affiliate as a condition precedent to the issuance of Restricted Stock.

7.2. *Award Agreements*. The terms of any Restricted Stock Award granted under the Plan shall be set forth in an Award Agreement which shall contain provisions determined by the Committee and not inconsistent with the Plan. The terms of Restricted Stock Awards need not be the same with respect to each Participant.

7.3. *Rights of Holders of Restricted Stock*. Unless otherwise provided in the Award Agreement, beginning on the date of grant of the Restricted Stock Award and subject to execution of the Award Agreement, the Participant shall become a stockholder of the Company with respect to all Shares subject to the Award Agreement and shall have all of the rights of a stockholder, including the right to vote such Shares and the right to receive distributions made with respect to such Shares; provided, however, that any Shares or any other property distributable as a dividend or otherwise with respect to any Restricted Stock as to which the restrictions have not yet lapsed shall be subject to the same restrictions as such Restricted Stock and shall not be paid until and unless the underlying award vests.

8. RESTRICTED STOCK UNIT AWARDS

8.1. *Grants*. Other Awards of units having a value equal to an identical number of Shares ("Restricted Stock Unit Awards") may be granted hereunder to Participants either alone or in addition to other Awards granted under the Plan. Restricted Stock Unit Awards shall also be available as a form of payment of other Awards granted under the Plan and other earned cash-based incentive compensation.

8.2. *Award Agreements*. The terms of Restricted Stock Unit Award granted under the Plan shall be set forth in a written Award Agreement which shall contain provisions determined by the Committee and not inconsistent with the Plan. Restricted Stock Unit Awards shall be subject to vesting restrictions imposed by the Committee covering a period of time specified by the Committee. The terms of such Awards need not be the same with respect to each Participant. Notwithstanding anything contained herein to the

contrary, cash dividends, stock and any other property (other than cash) distributed as a dividend or otherwise with respect to any Restricted Stock Unit Award shall either (i) not be paid at all, or (ii) be accumulated, and be subject to restrictions and risk of forfeiture to the same extent as the underlying Award and shall not be paid until and unless such restrictions and risk of forfeiture lapse.

8.3. *Payment*. Except as provided in Article 10 or as may be provided in an Award Agreement, Restricted Stock Unit Awards may be paid in cash, Shares, other property, or any combination thereof, in the sole discretion of the Committee. Restricted Stock Unit Awards may be paid in a lump sum or in installments or, in accordance with procedures established by the Committee, on a deferred basis subject to the requirements of Section 409A of the Code.

9. PERFORMANCE AWARDS

9.1. *Grants*. Performance Awards in the form of Performance Cash, Performance Shares or Performance Units, as determined by the Committee in its sole discretion, may be granted hereunder to Participants, for no consideration or for such minimum consideration as may be required by applicable law, either alone or in addition to other Awards granted under the Plan. The performance goals to be achieved for each Performance Period shall be conclusively determined by the Committee and may be based upon the criteria set forth in Section 10.1.

9.2. *Award Agreements*. The terms of any Performance Award granted under the Plan shall be set forth in an Award Agreement which shall contain provisions determined by the Committee and not inconsistent with the Plan, including whether such Awards shall have Dividend Equivalents. The terms of Performance Awards need not be the same with respect to each Participant. Notwithstanding anything contained herein to the contrary, cash dividends, stock and any other property (other than cash) distributed as a dividend or otherwise with respect to any Award of Performance Shares shall either (i) not be paid at all, or (ii) be accumulated, and be subject to restrictions and risk of forfeiture to the same extent as the underlying Award, and shall not be paid unless and until the restrictions and risk of forfeiture lapse.

9.3. *Terms and Conditions*. The performance criteria to be achieved during any Performance Period and the length of the Performance Period shall be determined by the Committee upon the grant of each Performance Award. The amount of the Award to be distributed shall be conclusively determined by the Committee.

9.4. *Payment*. Except as provided in Article 11 or as may be provided in an Award Agreement, Performance Awards will be distributed only after the end of the relevant Performance Period. Performance Awards may be paid in cash, Shares, other property, or any combination thereof, in the sole discretion of the Committee. Performance Awards may be paid in a lump sum or in installments following the close of the Performance Period or, in accordance with procedures established by the Committee, on a deferred basis subject to the requirements of Section 409A of the Code.

10. PROVISIONS APPLICABLE TO PERFORMANCE-VESTING AWARDS

10.1. *Performance Criteria*. If the Committee determines that an Award shall be subject to the achievement of one or more objective performance goals established by the Committee, then such Award may be based on the attainment of specified levels of one or any combination of the following (or any other metric or goal as the Committee may determine): net sales; revenue; revenue or product revenue growth; bookings; operating income or loss (before or after taxes); pre- or after-tax income or loss (before or after allocation of corporate overhead and bonus); net earnings or loss; earnings or loss per share; net income or loss (before or after taxes); return on equity; total stockholder return; return on assets or net assets; attainment of strategic and operational initiatives; appreciation in and/or maintenance of the price of the Shares or any other publicly-traded securities of the Company; market share; gross profits; earnings or losses (including earnings or losses before taxes, earnings or losses before interest and taxes, earnings or losses before interest, taxes and depreciation or earnings or losses before interest, taxes, depreciation and amortization); economic value-added models (or equivalent metrics); comparisons with various stock market indices; reductions in costs; cash flow or cash flow per share (before or after dividends); return on capital (including return on total capital or return on invested capital); cash flow return on investment; improvement in or attainment of expense levels or working capital levels; operating margin; gross margin; year-end cash; cash margin; debt reduction; stockholder's equity; market share; achievement of drug development milestones; regulatory achievements including approval of a drug candidate; progress of internal research or clinical programs; progress of partnered programs; implementation or completion of projects and processes; partner satisfaction; budget management; clinical achievements; completing phases of a clinical study (including the treatment phase) or announcing or presenting preliminary or final data from clinical studies, in each case, whether on particular timelines or generally; timely completion of clinical trials; submission of INDs and NDAs and other regulatory achievements; partner or collaborator achievements; internal controls, including those related to the Sarbanes-Oxley Act of 2002; research progress, including the development of programs; financing; investor relations, analysts and communication; manufacturing achievements (including obtaining particular yields from manufacturing runs and other measurable objectives related to process development activities); strategic partnerships or transactions (including in-licensing and out-licensing of intellectual property); establishing relationships with commercial entities with respect to the marketing, distribution and sale of the

Company's products (including with group purchasing organizations, distributors and other vendors); supply chain achievements (including establishing relationships with manufacturers or suppliers of active pharmaceutical ingredients and other component materials and manufacturers of the Company's products); co-development, co-marketing, profit sharing, joint venture or other similar arrangements; financing and other capital raising transactions (including sales of the Company's equity or debt securities); sales or licenses of the Company's assets, including its intellectual property (whether in a particular jurisdiction or territory or globally or through partnering transactions); implementation, completion or attainment of measurable objectives with respect to research, development, manufacturing, commercialization, products or projects, production volume levels, acquisitions and divestitures; factoring transactions; and recruiting and maintaining personnel. Any performance goals that are financial metrics, may be determined in accordance with U.S. Generally Accepted Accounting Principles ("GAAP"), in accordance with accounting principles established by the International Accounting Standards Board ("IASB Principles"), or may be adjusted when established to include or exclude any items otherwise includable or excludable under GAAP or under IASB Principles. Such performance goals also may be based solely by reference to the Company's performance or the performance of an Affiliate, division, business segment or business unit of the Company, or based upon the relative performance of other companies or upon comparisons of any of the indicators of performance relative to other companies. The Committee may also exclude charges related to an event or occurrence which the Committee determines should appropriately be excluded, including (a) restructurings or discontinued operations, (b) items that are "unusual" in nature or occur "infrequently" as determined under generally accepted accounting principles, (c) an event either not directly related to the operations of the Company or not within the reasonable control of the Company's management, or (d) the cumulative effects of tax or accounting changes in accordance with U.S. generally accepted accounting principles. Notwithstanding the foregoing, the Committee, in its sole discretion, may grant performance-based Awards that are not intended to, and do not, meet the requirements set forth in this Section 10.1.

10.2. *Adjustments*. Notwithstanding any provision of the Plan (other than Article 11), with respect to any Award that is subject to this Section 10, the Committee may adjust the amount payable pursuant to such Award.

10.3. *Restrictions*. The Committee shall have the power to impose such other restrictions on Awards subject to this Article as it may deem necessary or appropriate.

11. CHANGE IN CONTROL PROVISIONS

11.1. *Impact on Certain Awards*. The Committee, in its discretion, may determine that in the event of a Change in Control of the Company (as defined in Section 11.3) Options and Stock Appreciation Rights outstanding as of the date of the Change in Control shall be cancelled and terminated without payment therefor if the Fair Market Value of one Share as of the date of the Change in Control is less than the Option per Share option price or Stock Appreciation Right per Share grant price.

11.2. *Assumption or Substitution of Certain Awards*.

(a) To the extent provided in an Award Agreement, in the event of a Change in Control of the Company in which the successor company assumes or substitutes for an Option, Stock Appreciation Right, Restricted Stock Award or Restricted Stock Unit Award (or in which the Company is the ultimate parent corporation and continues the Award), if a Participant's employment with such successor company (or the Company) or a subsidiary thereof terminates within the time period following such Change in Control set forth in the Award Agreement (or prior thereto if applicable) and under the circumstances specified in the Award Agreement: (i) Options and Stock Appreciation Rights outstanding as of the date of such termination of employment will immediately vest, become fully exercisable, and may thereafter be exercised for the period of time set forth in the Award Agreement, (ii) the restrictions, limitations and other conditions applicable to Restricted Stock shall lapse and the Restricted Stock shall become free of all restrictions, limitations and conditions and become fully vested, and (iii) the restrictions, limitations and other conditions applicable to any Restricted Stock Unit Awards or any other Awards shall lapse, and such Restricted Stock Unit Awards or such other Awards shall become free of all restrictions, limitations and conditions and become fully vested and transferable to the full extent of the original grant. For the purposes of this Section, an Option, Stock Appreciation Right, Restricted Stock Award or Restricted Stock Unit Award shall be considered assumed or substituted for if following the Change in Control the Award confers the right to purchase or receive, for each Share subject to the Option, Stock Appreciation Right, Restricted Stock Award or Restricted Stock Unit Award immediately prior to the Change in Control, the consideration (whether stock, cash or other securities or property) received in the transaction constituting a Change in Control by holders of Shares for each Share held on the effective date of such transaction (and if holders were offered a choice of consideration, the type of consideration chosen by the holders of a majority of the outstanding shares); provided, however, that if such consideration received in the transaction constituting a Change in Control is not solely common stock of the successor company, the Committee may, with the consent of the successor company, provide that the consideration to be received upon the exercise or vesting of an Option, Stock Appreciation Right, Restricted Stock Award or Restricted Stock Unit Award, for each Share subject thereto, will be solely common stock of the successor company substantially equal in fair market value to the per Share consideration received by holders of Shares in the transaction constituting a Change in Control. The determination of such substantial equality of value of consideration shall be made by the Committee in its sole discretion and its determination shall be conclusive and binding.

(b) Unless otherwise provided in an Award Agreement, in the event of a Change in Control of the Company, to the extent that the successor company does not assume or substitute for an Option, Stock Appreciation Right, Restricted Stock Award, Restricted Stock Unit Award or Performance Award (or in which the Company is the ultimate parent corporation and does not continue the Award), then immediately prior to the Change in Control: (i) those Options and Stock Appreciation Rights outstanding as of the date of the Change in Control that are not assumed or substituted for (or continued) shall immediately vest and become fully exercisable, (ii) restrictions, limitations and conditions on Restricted Stock not assumed or substituted for (or continued) shall lapse and the Restricted Stock shall become free of all restrictions, limitations and conditions and become fully vested, (iii) the restrictions limitations and conditions applicable to any Restricted Stock Unit Awards or any other Awards not assumed or substituted for (or continued) shall lapse, and such Restricted Stock Unit Awards or such other Awards shall become free of all restrictions, limitations and conditions and become fully vested and transferable to the full extent of the original grant, (iv) all Performance Awards not assumed or substituted for (or continued) shall be considered to be earned and payable in full, and any deferral or other restriction shall lapse and such Performance Awards shall be immediately settled or distributed, and (v) all Awards not assumed or substituted for (or continued) shall terminate immediately after the Change in Control.

(c) The Committee, in its discretion, may determine that, upon the occurrence of a Change in Control of the Company, each Option and Stock Appreciation Right outstanding shall terminate within a specified number of days after notice to the Participant, and/or that each Participant shall receive, with respect to each Share subject to such Option or Stock Appreciation Right, an amount equal to the excess (if any) of the Fair Market Value of such Share immediately prior to the occurrence of such Change in Control over the exercise price per Share of such Option and/or Stock Appreciation Right; such amount to be payable in cash, in one or more kinds of stock or property (including the stock or property, if any, payable in the transaction) or in a combination thereof, as the Committee, in its discretion, shall determine.

11.3. *Change in Control*. For purposes of the Plan, unless otherwise provided in an Award Agreement, Change in Control means the occurrence of any one of the following events:

(i) During any twenty-four (24) month period, individuals who, as of the beginning of such period, constitute the Board (the "Incumbent Directors") cease for any reason to constitute at least a majority of the Board, provided that any person becoming a director subsequent to the beginning of such period whose election or nomination for election was approved by a vote of at least a majority of the Incumbent Directors then on the Board (either by a specific vote or by approval of the proxy statement of the Company in which such person is named as a nominee for director, without written objection to such nomination) shall be an Incumbent Director; provided, however, that no individual initially elected or nominated as a director of the Company as a result of an actual or threatened election contest with respect to directors or as a result of any other actual or threatened solicitation of proxies by or on behalf of any person other than the Board shall be deemed to be an Incumbent Director;

(ii) Any "person" (as such term is defined in the Exchange Act and as used in Sections 13(d)(3) and 14(d)(2) of the Exchange Act) is or becomes a "beneficial owner" (as defined in Rule 13d3 under the Exchange Act), directly or indirectly, of securities of the Company representing 50% or more of the combined voting power of the Company's then outstanding securities eligible to vote for the election of the Board (the "Company Voting Securities"); provided, however, that the event described in this paragraph (ii) shall not be deemed to be a Change in Control by virtue of any of the following acquisitions: (A) by the Company or any Affiliate, (B) by any employee benefit plan (or related trust) sponsored or maintained by the Company or any Affiliate, (C) by any underwriter temporarily holding securities pursuant to an offering of such securities, (D) pursuant to a Non-Qualifying Transaction, as defined in paragraph (iii), or (E) by any person of Voting Securities from the Company, if a majority of the Incumbent Board approves in advance the acquisition of beneficial ownership of 50% or more of Company Voting Securities by such person;

(iii) The consummation of a merger, consolidation, statutory share exchange or similar form of corporate transaction involving the Company or any of its Affiliates that requires the approval of the Company's stockholders, whether for such transaction or the issuance of securities in the transaction (a "Business Combination"), unless immediately following such Business Combination: (A) more than 60% of the total voting power of (x) the corporation resulting from such Business Combination (the "Surviving Corporation"), or (y) if applicable, the ultimate parent corporation that directly or indirectly has beneficial ownership of 100% of the voting securities eligible to elect directors of the Surviving Corporation (the "Parent Corporation"), is represented by Company Voting Securities that were outstanding immediately prior to such Business Combination (or, if applicable, is represented by shares into which such Company Voting Securities were converted pursuant to such Business Combination), and such voting power among the holders thereof is in substantially the same proportion as the voting power of such Company Voting Securities among the holders thereof immediately prior to the Business Combination, (B) no person (other than any employee benefit plan (or related trust) sponsored or maintained by the Surviving Corporation or the Parent Corporation), is or becomes the beneficial owner, directly or indirectly, of 50% or more of the total voting power of the outstanding voting securities eligible to elect directors of the Parent Corporation (or, if there is no Parent Corporation, the Surviving Corporation) and (C) at least a majority of the members of the board of directors of the Parent Corporation (or, if there is no Parent Corporation, the Surviving Corporation) following the consummation of the Business Combination were Incumbent Directors at the time of the Board's approval of the execution of the initial agreement providing for such Business Combination (any Business Combination which satisfies all of the criteria specified in (A), (B) and (C) above shall be deemed to be a "Non-Qualifying Transaction"); or

(iv) The stockholders of the Company approve a plan of complete liquidation or dissolution of the Company or the consummation of a sale, lease, exclusive license or other disposition of all or substantially all of the Company's assets.

Notwithstanding the foregoing, a Change in Control shall not be deemed to occur solely because any person acquires beneficial ownership of more than 50% of the Company Voting Securities as a result of the acquisition of Company Voting Securities by the Company which reduces the number of Company Voting Securities outstanding; provided, that if after such acquisition by the Company such person becomes the beneficial owner of additional Company Voting Securities that increases the percentage of outstanding Company Voting Securities beneficially owned by such person, a Change in Control of the Company shall then occur.

12. GENERALLY APPLICABLE PROVISIONS

12.1. *Amendment and Termination of the Plan*. Each of the Board and the Committee may, from time to time, alter, amend, suspend or terminate the Plan as it shall deem advisable, subject to any requirement for stockholder approval imposed by applicable law, including the rules and regulations of the Nasdaq Stock Market (or such other principal U.S. national securities exchange on which the Shares are traded) and the Inducement Award Rules; provided that neither the Board or the Committee may amend the Plan in any manner that would result in noncompliance with Rule 16b-3 of the Exchange Act; and further provided that the Board and the Committee may not, without the approval of the Company's stockholders to the extent required by such applicable law, amend the Plan to (a) increase the number of Shares that may be the subject of Awards granted pursuant to the share reserve established in Section 3.1 of the Plan (except for adjustments pursuant to Section 12.2); (b) expand the types of awards available under the Plan; (c) materially expand the class of persons eligible to participate in the Plan; (d) amend any provision of Section 5.3 or the last sentence of Section 6.2(d); or (e) increase the maximum permissible term of the Plan or of any Option specified by Section 5.4 or the maximum permissible term of a Stock Appreciation Right specified by Section 6.2(d). Neither the Board nor the Committee may, without the approval of the Company's stockholders, cancel an Option or Stock Appreciation Right in exchange for cash or take any action with respect to an Option or Stock Appreciation Right that may be treated as a repricing under the rules and regulations of the Nasdaq Stock Market (or such other principal U.S. national securities exchange on which the Shares are traded), including a reduction of the exercise price of an Option or the grant price of a Stock Appreciation Right or the exchange of an Option or Stock Appreciation Right for cash or another Award when the option price or grant price per Share exceeds the Fair Market Value of one Share. In addition, no amendments to, or termination of, the Plan shall in any way impair the rights of a Participant under any Award previously granted without such Participant's consent.

12.2. *Adjustments*. In the event of any merger, reorganization, consolidation, recapitalization, dividend or distribution (whether in cash, shares or other property, other than a regular cash dividend), stock split, reverse stock split, spin-off or similar transaction or other change in corporate structure affecting the Shares or the value thereof, such adjustments and other substitutions shall be made to the Plan and to Awards as the Committee deems equitable or appropriate taking into consideration the accounting and tax consequences, including such adjustments in the aggregate number, class and kind of securities that may be delivered under the Plan and pursuant to Section 3.3, the maximum number of Shares that may be issued pursuant to Incentive Stock Options and, in the aggregate or to any one Participant, in the number, class, kind and option or exercise price of securities subject to outstanding Awards granted under the Plan (including, if the Committee deems appropriate, the substitution of similar options to purchase the shares of, or other awards denominated in the shares of, another company) as the Committee may determine to be appropriate in its sole discretion; provided, however, that the number of Shares subject to any Award shall always be a whole number.

12.3. *Transferability of Awards*. Except as provided below, no Award and no Shares subject to Awards described in Article 8 that have not been issued or as to which any applicable restriction, performance or deferral period has not lapsed, may be sold, assigned, transferred, pledged or otherwise encumbered, other than by will or the laws of descent and distribution, and such Award may be exercised during the life of the Participant only by the Participant or the Participant's guardian or legal representative. To the extent and under such terms and conditions as determined by the Committee, a Participant may assign or transfer an Award (each transferee thereof, a "Permitted Assignee") to a "family member" as such term is defined in the General Instructions to Form S-8 (whether by gift or a domestic relations order for no consideration); provided that such Permitted Assignee shall be bound by and subject to all of the terms and conditions of the Plan and the Award Agreement relating to the transferred Award and shall execute an agreement satisfactory to the Company evidencing such obligations; and provided further that such Participant shall remain bound by the terms and conditions of the Plan. The Company shall cooperate with any Permitted Assignee and the Company's transfer agent in effectuating any transfer permitted under this Section. Options and Stock Appreciation Rights may not be transferred to a third party financial institution for value.

12.4. *Termination of Employment*. The Committee shall determine and set forth in each Award Agreement whether any Awards granted in such Award Agreement will continue to be exercisable, continue to vest or be earned and the terms of such exercise, vesting or earning, on and after the date that a Participant ceases to be employed by or to provide services to the Company or any Affiliate (including as a Director), whether by reason of death, disability, voluntary or involuntary termination of employment or services, or otherwise. The date of termination of a Participant's employment or services will be determined by the Committee, which determination will be final.

12.5. *Deferral*; *Dividend Equivalents*. The Committee shall be authorized to establish procedures pursuant to which the payment of any Award may be deferred. Subject to the provisions of the Plan and any Award Agreement, the recipient of an Award (including any deferred Award) other than an Option or Stock Appreciation Right may, if so determined by the Committee, be entitled to receive cash, stock or other property dividends, or cash payments in amounts equivalent to cash, stock or other property dividends on Shares ("Dividend Equivalents") with respect to the number of Shares covered by the Award, as determined by the Committee, in its sole discretion. The Committee may provide that such amounts and Dividend Equivalents (if any) shall be deemed to have been reinvested in additional Shares or otherwise reinvested. Notwithstanding the foregoing, Dividend Equivalents shall in all events be subject to restrictions and risk of forfeiture to the same extent as the Award with respect to which such Dividend Equivalents have been credited and shall not be paid until and unless the underlying Award vests.

13. MISCELLANEOUS

13.1. *Tax Withholding*. The Company shall have the right to make all payments or distributions pursuant to the Plan to a Participant (or a Permitted Assignee thereof) (any such person, a "Payee") net of any applicable federal, state and local taxes required to be paid or withheld as a result of (a) the grant of any Award, (b) the exercise of an Option or Stock Appreciation Right, (c) the delivery of Shares or cash, (d) the lapse of any restrictions in connection with any Award or (e) any other event occurring pursuant to the Plan. The Company or any Affiliate shall have the right to withhold from wages or other amounts otherwise payable to such Payee such withholding taxes as may be required by law, or to otherwise require the Payee to pay such withholding taxes. If the Payee shall fail to make such tax payments as are required, the Company or its Affiliates shall, to the extent permitted by law, have the right to deduct any such taxes from any payment of any kind otherwise due to such Payee or to take such other action as may be necessary to satisfy such withholding obligations. The Committee shall be authorized to establish procedures for election by Participants to satisfy such obligation for the payment of such taxes by tendering previously acquired Shares (either actually or by attestation, valued at their then Fair Market Value), or by directing the Company to retain Shares (up to the Participant's maximum statutory tax withholding rate or such other rate that will not cause an adverse accounting consequence or cost) otherwise deliverable in connection with the Award, subject to the discretion of the Committee and in accordance with Company policies.

13.2. *Right of Discharge Reserved; Claims to Awards*. Nothing in the Plan nor the grant of an Award hereunder shall confer upon any Employee, Director or Consultant the right to continue in the employment or service of the Company or any Affiliate or affect any right that the Company or any Affiliate may have to terminate the employment or service of (or to demote or to exclude from future Awards under the Plan) any such Employee, Director or Consultant at any time for any reason. Except as specifically provided by the Committee, the Company shall not be liable for the loss of existing or potential profit from an Award granted in the event of termination of an employment or other relationship. No Employee, Director or Consultant shall have any claim to be granted any Award under the Plan, and there is no obligation for uniformity of treatment of Employees, Directors or Consultants under the Plan. In addition, in the event a Participant's regular level of time commitment in the performance of his or her services for the Company and any Affiliates is reduced (for example, and without limitation, if the Participant is an Employee of the Company and the Employee has a change in status from a full-time Employee to a part-time Employee) after the date of grant of any Award to the Participant, the Compensation Committee has the right in its sole discretion to (x) make a corresponding reduction in the number of shares or cash amount subject to any portion of such Award that is scheduled to vest or become payable after the date of such change in time commitment, and (y) in lieu of or in combination with such a reduction, extend the vesting or payment schedule applicable to such Award. In the event of any such reduction, the Participant will have no right with respect to any portion of the Award that is so reduced.

13.3. *Prospective Recipient*. The prospective recipient of any Award under the Plan shall not, with respect to such Award, be deemed to have become a Participant, or to have any rights with respect to such Award, until and unless such recipient shall have accepted the Award in accordance with the procedures established by the Company, and otherwise complied with the then applicable terms and conditions.

13.4. *Substitute Awards*. Notwithstanding any other provision of the Plan, the terms of Substitute Awards may vary from the terms set forth in the Plan to the extent the Committee deems appropriate to conform, in whole or in part, to the provisions of the awards in substitution for which they are granted.

13.5. *Cancellation of* Award.

(a) Notwithstanding anything to the contrary contained herein, an Award Agreement may provide that the Award shall be canceled if the Participant, without the consent of the Company, while employed by, or providing services to, the Company or any Affiliate or after termination of such employment or services, establishes a relationship with a competitor of the Company or any Affiliate or engages in activity that is in conflict with or adverse to the interest of the Company or any Affiliate (including conduct contributing to any financial restatements or financial irregularities), as determined by the Committee in its sole discretion. The Committee may provide in an Award Agreement that if within the time period specified in the Agreement the Participant establishes a relationship with a competitor or engages in an activity referred to in the preceding sentence, the Participant will forfeit any gain realized on the vesting or exercise of the Award and must repay such gain to the Company. In addition, all Awards granted under the Plan will be subject to recoupment in accordance with any clawback policy that the Company adopts, including any clawback policy the Company is required to adopt pursuant to the listing standards of any national securities exchange or association on which the Company's securities are listed or as is otherwise required by the Dodd-Frank Wall Street Reform and Consumer Protection Act or other applicable law. In addition, the Board may impose such other clawback, recovery or recoupment provisions in an Award Agreement as the Board determines necessary or appropriate.

(b) In the event the Participant ceases to be employed by, or provide services to, the Company on account of a termination for Cause by the Company, any Award held by the Participant shall terminate as of the date the Participant ceases to be employed by, or provide services to, the Company. In addition, notwithstanding any other provisions of this Section, if the Committee determines that the Participant has engaged in conduct that constitutes Cause at any time while the Participant is employed by, or providing services to, the Company or after the Participant's termination of employment or services, any Awards held by the Participant shall immediately terminate. In the event a Participant's employment or services is terminated for Cause, in addition to the immediate termination of all Awards, the Participant shall automatically forfeit all shares underlying any exercised portion of an Option for which the Company has not yet delivered the share certificates, upon refund by the Company of the option price paid by the Participant for such shares.

13.6. *Stop Transfer Orders*. All certificates for Shares delivered under the Plan pursuant to any Award shall be subject to such stop-transfer orders and other restrictions as the Committee may deem advisable under the rules, regulations and other requirements of the Securities and Exchange Commission, any stock exchange upon which the Shares are then listed, and any applicable federal or state securities law, and the Committee may cause a legend or legends to be put on any such certificates to make appropriate reference to such restrictions.

13.7. *Nature of Payments*. All Awards made pursuant to the Plan are in consideration of services performed or to be performed for the Company or any Affiliate, division or business unit of the Company. Any income or gain realized pursuant to Awards under the Plan constitutes a special incentive payment to the Participant and shall not be taken into account, to the extent permissible under applicable law, as compensation for purposes of any of the employee benefit plans of the Company or any Affiliate except as may be determined by the Committee or by the Board or board of directors of the applicable Affiliate.

13.8. *Other Plans*. Nothing contained in the Plan shall prevent the Board from adopting other or additional compensation arrangements, subject to stockholder approval if such approval is required; and such arrangements may be either generally applicable or applicable only in specific cases.

13.9. *Severability*. The provisions of the Plan shall be deemed severable. If any provision of the Plan shall be held unlawful or otherwise invalid or unenforceable in whole or in part by a court of competent jurisdiction or by reason of a change in a law or regulation, such provision shall (a) be deemed limited to the extent that such court of competent jurisdiction deems it lawful, valid and/or enforceable and as so limited shall remain in full force and effect, and (b) not affect any other provision of the Plan or part thereof, each of which shall remain in full force and effect. If the making of any payment or the provision of any other benefit required under the Plan shall be held unlawful or otherwise invalid or unenforceable by a court of competent jurisdiction, such unlawfulness, invalidity or unenforceability shall not prevent any other payment or benefit from being made or provided under the Plan, and if the making of any payment in full or the provision of any other benefit required under the Plan in full would be unlawful or otherwise invalid or unenforceable, then such unlawfulness, invalidity or unenforceability shall not prevent such payment or benefit from being made or provided in part, to the extent that it would not be unlawful, invalid or unenforceable, and the maximum payment or benefit that would not be unlawful, invalid or unenforceable shall be made or provided under the Plan.

13.10. *Construction*. As used in the Plan, the words "*include*" and "*including*," and variations thereof, shall not be deemed to be terms of limitation, but rather shall be deemed to be followed by the words "*without limitation*."

13.11. *Unfunded Status of the Plan*. The Plan is intended to constitute an "unfunded" plan for incentive and deferred compensation. With respect to any payments not yet made to a Participant by the Company, nothing contained herein shall give any such Participant any rights that are greater than those of a general creditor of the Company. In its sole discretion, the Committee may authorize the creation of trusts or other arrangements to meet the obligations created under the Plan to deliver the Shares or payments in lieu of or with respect to Awards hereunder; provided, however, that the existence of such trusts or other arrangements is consistent with the unfunded status of the Plan.

13.12. *Governing Law*. The Plan and all determinations made and actions taken thereunder, to the extent not otherwise governed by the Code or the laws of the United States, shall be governed by the laws of the State of Delaware, without reference to principles of conflict of laws, and construed accordingly.

13.13. *Effective Date of Plan; Termination of Plan*. The Plan originally became effective on June 12, 2020 (such date, the "Effective Date"). Awards may be granted under the Plan at any time and from time to time on or prior to the tenth anniversary of the Effective Date, on which date the Plan will expire except as to Awards then outstanding under the Plan; provided, however, in no event may an Incentive Stock Option be granted more than ten (10) years after the earlier of (i) date of the adoption of the Plan by the Board or Committee, as applicable and (ii) the Effective Date. Such outstanding Awards shall remain in effect until they have been exercised or terminated or have expired.

13.14. *Foreign Employees and Consultants*. Awards may be granted to Participants who are foreign nationals or employed or providing services outside the United States, or both, on such terms and conditions different from those applicable to Awards to Employees employed or providing services in the United States as may, in the judgment of the Committee, be necessary or desirable in order to recognize differences in local law or tax policy. The Committee also may impose conditions on the exercise or vesting of Awards in order to minimize the Company's obligation with respect to tax equalization for Employees or Consultants on assignments outside their home country.

13.15. *Compliance with Section 409A of the Code*. This Plan is intended to comply and shall be administered in a manner that is intended to comply with Section 409A of the Code and shall be construed and interpreted in accordance with such intent. To the extent that an Award or the payment, settlement or deferral thereof is subject to Section 409A of the Code, the Award shall be granted, paid, settled or deferred in a manner that will comply with Section 409A of the Code, including regulations or other guidance issued with respect thereto, except as otherwise determined by the Committee. Any provision of this Plan that would cause the grant of an Award or the payment, settlement or deferral thereof to fail to satisfy Section 409A of the Code shall be amended to comply with Section 409A of the Code on a timely basis, which may be made on a retroactive basis, in accordance with regulations and other guidance issued under Section 409A of the Code.

Should any payments made in accordance with the Plan to a "specified employee" (as defined under Section 409A of the Code) be determined to be payments from a nonqualified deferred compensation plan and are payable in connection with a Participant's "separation from service" (as defined under Section 409A of the Code), that are not exempt from Section 409A of the Code as a short-term deferral or otherwise, these payments, to the extent otherwise payable within six (6) months after the Participant's separation from service, and to the extent necessary to avoid the imposition of taxes under Section 409A of the Code, will be paid in a lump sum on the earlier of the date that is six (6) months and one day after the Participant's date of separation from service or the date of the Participant's death. For purposes of Section 409A of the Code, the payments to be made to a Participant in accordance with this Plan shall be treated as a right to a series of separate payments.

13.16. *Captions*. The captions in the Plan are for convenience of reference only, and are not intended to narrow, limit or affect the substance or interpretation of the provisions contained herein.

Exhibit 31.1

CERTIFICATION

I, Amit D. Munshi, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Arena Pharmaceuticals, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: May 5, 2021

/s/ Amit D. Munshi

Amit D. Munshi, President and Chief Executive Officer

Exhibit 31.2

CERTIFICATION

I, Laurie D. Stelzer, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Arena Pharmaceuticals, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) Evaluated the effectiveness of the registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) Disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant’s auditors and the audit committee of the registrant’s board of directors (or persons performing the equivalent functions):

   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant’s ability to record, process, summarize and report financial information; and

   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant’s internal control over financial reporting.

Date: May 5, 2021

/s/ Laurie D. Stelzer

Laurie D. Stelzer, Executive Vice President
and Chief Financial Officer

Exhibit 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report on Form 10-Q of Arena Pharmaceuticals, Inc. (the "Company") for the period ended September 30, 2020, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), Amit D. Munshi, as President and Chief Executive Officer of the Company, and Laurie D. Stelzer, as Executive Vice President and Chief Financial Officer of the Company, each hereby certifies, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to the best of his or her knowledge:

1. the Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

2. the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Amit D. Munshi
Amit D. Munshi
President and Chief Executive Officer

Date:May 5, 2021

/s/ Laurie D. Stelzer
Laurie D. Stelzer
Executive Vice President and Chief Financial Officer

Date:May 5, 2021