

**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, 2022**

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 **001-37635**

AXSOME THERAPEUTICS, INC.

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of incorporation or organization)

**22 Cortlandt Street
16th Floor**

New York, New York

(Address of principal executive offices)

45-4241907

(I.R.S. Employer Identification No.)

10007

(Zip Code)

Registrant's telephone number, including area code: (212) 332-3241

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. 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 during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes 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 definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.:

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

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided 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 No

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	AXSM	The Nasdaq Global Market

There were 38,913,550 shares of the registrant's common stock, \$0.0001 par value, outstanding as of April 26, 2022.

AXSOME THERAPEUTICS, INC.
QUARTERLY REPORT ON FORM 10-Q
FOR THE QUARTER ENDED MARCH 31, 2022

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CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

Certain matters discussed in this report, including matters discussed under the caption “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” may constitute forward-looking statements for purposes of the Securities Act of 1933, as amended, or the Securities Act, and the Securities Exchange Act of 1934, as amended, or the Exchange Act, and involve known and unknown risks, uncertainties and other factors that may cause our actual results, performance or achievements to be materially different from the future results, performance or achievements expressed or implied by such forward-looking statements. The words “anticipate,” “believe,” “estimate,” “may,” “expect” and similar expressions are generally intended to identify forward-looking statements. Our actual results may differ materially from the results anticipated in these forward-looking statements due to a variety of factors, including, without limitation, those discussed under the captions “Risk Factors,” “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and elsewhere in this report, as well as other factors which may be identified from time to time in our other filings with the Securities and Exchange Commission, or the SEC, or in the documents where such forward-looking statements appear. All written or oral forward-looking statements attributable to us are expressly qualified in their entirety by these cautionary statements. Such forward-looking statements include, but are not limited to, statements about:

- our expectations for increases or decreases in expenses;
- our expectations for the clinical and preclinical development, manufacturing, regulatory approval, and commercialization of our pharmaceutical product candidates or any other products that we may acquire or in-license;
- our estimates of the sufficiency of our existing capital resources combined with future anticipated cash flows to finance our operating requirements;
- our expectations for incurring capital expenditures to expand our research and development and manufacturing capabilities;
- unforeseen circumstances or other disruptions to normal business operations arising from or related to COVID-19;
- our expectations for generating revenue or becoming profitable on a sustained basis;
- our expectations or ability to enter into marketing and other partnership agreements;
- our expectations or ability to enter into product acquisition and in-licensing transactions;
- our expectations or ability to build our own commercial infrastructure to manufacture, market and sell our product candidates;
- our expected losses;
- our ability to obtain and maintain intellectual property protection for our product candidates;
- the acceptance of our products by doctors, patients, or payors;
- our stock price and its volatility;
- our ability to attract and retain key personnel;
- the performance of our third-party manufacturers;
- our expectations for future capital requirements; and
- our ability to successfully implement our strategy.

The forward-looking statements contained in this report reflect our views and assumptions only as of the date that this report is signed. Except as required by law, we assume no responsibility for updating any forward-looking statements.

We qualify all of our forward-looking statements by these cautionary statements. In addition, with respect to all of our forward-looking statements, we claim the protection of the safe harbor for forward-looking statements contained in the Private Securities Litigation Reform Act of 1995.

PART I. FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

Axsome Therapeutics, Inc.
Consolidated Balance Sheets

	March 31, 2022 (Unaudited)	December 31, 2021
Assets		
Current assets:		
Cash and cash equivalents	\$ 84,707,782	\$ 86,472,854
Prepaid and other current assets	2,122,144	45,286
Total current assets	86,829,926	86,518,140
Equipment, net	460,946	283,846
Right-of-use asset - operating lease	946,479	660,162
Other assets	322,910	322,910
Total assets	\$ 88,560,261	\$ 87,785,058
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	\$ 12,595,112	\$ 13,149,329
Accrued expenses and other current liabilities	10,987,222	9,295,180
Operating lease liability, current portion	967,248	620,675
Total current liabilities	24,549,582	23,065,184
Loan payable, long-term	49,312,665	49,089,522
Total liabilities	73,862,247	72,154,706
Stockholders' equity:		
Preferred stock, \$0.0001 par value per share (10,000,000 shares authorized, none issued and outstanding at March 31, 2022 and December 31, 2021, respectively)	—	—
Common stock, \$0.0001 par value per share (150,000,000 shares authorized, 38,883,445 and 37,816,794 shares issued and outstanding at March 31, 2022 and December 31, 2021, respectively)	3,888	3,782
Additional paid-in capital	463,525,522	424,825,655
Accumulated deficit	(448,831,396)	(409,199,085)
Total stockholders' equity	14,698,014	15,630,352
Total liabilities and stockholders' equity	\$ 88,560,261	\$ 87,785,058

The accompanying notes are an integral part of the consolidated financial statements.

Axsome Therapeutics, Inc.
Consolidated Statements of Operations
(Unaudited)

	Three Months March 31,	
	2022	2021
Operating expenses:		
Research and development	\$ 12,585,141	\$ 16,595,689
General and administrative	25,703,731	11,248,372
Total operating expenses	38,288,872	27,844,061
Loss from operations	(38,288,872)	(27,844,061)
Interest income (expense)	(1,343,439)	(1,415,909)
Net loss	\$ (39,632,311)	\$ (29,259,970)
Net loss per common share, basic and diluted	\$ (1.03)	\$ (0.78)
Weighted average common shares outstanding, basic and diluted	38,323,167	37,429,450

The accompanying notes are an integral part of the consolidated financial statements.

Axsome Therapeutics, Inc.
Consolidated Statements of Stockholders' Equity
(Unaudited)

	Common stock		Additional paid-in capital	Accumulated deficit	Total stockholders' equity
	Shares	Amount			
Balance at December 31, 2020	37,374,088	3,737	392,585,265	(278,796,093)	113,792,909
Stock-based compensation	—	—	3,731,097	—	3,731,097
Issuance of common stock upon exercise of options	94,000	10	1,913,289	—	1,913,299
Issuance of common stock upon vesting of RSUs	1,917	0	—	—	—
Issuance of common stock upon financing	93,877	9	6,115,855	—	6,115,864
Net loss	—	—	—	(29,259,970)	(29,259,970)
Balance at March 31, 2021	37,563,882	3,756	404,345,506	(308,056,063)	96,293,199
Balance at December 31, 2021	37,816,794	3,782	424,825,655	(409,199,085)	15,630,352
Stock-based compensation	—	—	7,598,329	—	7,598,329
Issuance of common stock upon exercise of options	18,015	2	181,635	—	181,637
Issuance of common stock upon vesting of RSUs	4,555	0	—	—	—
Issuance of common stock upon financing	1,044,081	104	31,008,497	—	31,008,601
Shares tendered for withholding taxes	—	0	(88,594)	—	(88,594)
Net loss	—	—	—	(39,632,311)	(39,632,311)
Balance at March 31, 2022	38,883,445	3,888	463,525,522	(448,831,396)	14,698,014

The accompanying notes are an integral part of the consolidated financial statements.

Axsome Therapeutics, Inc.
Consolidated Statements of Cash Flows
(Unaudited)

	Three Months Ended March 31,	
	2022	2021
Cash flows from operating activities		
Net loss	\$ (39,632,311)	\$ (29,259,970)
Adjustments to reconcile net loss to net cash used in operating activities:		
Stock-based compensation expense	7,598,329	3,731,097
Amortization of debt discount	223,143	276,095
Depreciation	36,636	8,326
Amortization of operating lease right-of-use asset	275,063	262,764
Change in operating lease liability	(214,807)	(275,840)
Changes in operating assets and liabilities:		
Prepaid expenses and other current assets	(2,076,858)	(226,933)
Accounts payable	(554,217)	1,117,695
Accrued expenses and other current liabilities	1,692,042	(2,848,723)
Net cash used in operating activities	<u>(32,652,980)</u>	<u>(27,215,489)</u>
Cash flows from investing activities		
Purchases of equipment	(213,736)	(29,995)
Net cash used in investing activities	<u>(213,736)</u>	<u>(29,995)</u>
Cash flows from financing activities		
Proceeds from issuance of common stock upon financing, net	31,008,601	6,115,864
Proceeds from issuance of common stock upon exercise of options	181,637	1,913,299
Payments of tax withholdings on stock award	(88,594)	—
Net cash (used in) provided by financing activities	<u>31,101,644</u>	<u>8,029,163</u>
Net (decrease) increase in cash	(1,765,072)	(19,216,321)
Cash at beginning of period	86,472,854	183,876,453
Cash at end of period	<u>\$ 84,707,782</u>	<u>\$ 164,660,132</u>
Supplemental disclosures of cash flow information:		
Interest paid	\$ 1,118,750	\$ 1,143,750
Operating lease right-of-use asset obtained in exchange for operating lease liability	561,380	—

The accompanying notes are an integral part of the consolidated financial statements.

Axsome Therapeutics, Inc.
Notes to Consolidated Financial Statements (Unaudited)

Note 1. Nature of Business and Basis of Presentation

Axsome Therapeutics, Inc. (“Axsome” or the “Company”) is a biopharmaceutical company developing novel therapies for central nervous system (“CNS”) disorders for which there are limited treatment options. By focusing on this therapeutic area, the Company is addressing significant and growing markets where current treatment options are limited or inadequate. The Company’s core CNS portfolio includes four product candidates, AXS-05, AXS-07, AXS-12, and AXS-14, which are being developed for multiple indications. The Company aims to become a fully integrated biopharmaceutical company that develops and commercializes differentiated therapies that expand the treatment options available to caregivers and improve the lives of patients living with CNS disorders. The Company was incorporated on January 12, 2012 in the State of Delaware.

The accompanying unaudited interim consolidated financial statements have been prepared by the Company in accordance with accounting principles generally accepted in the United States (“U.S. GAAP”) for interim information and pursuant to the rules and regulations of the Securities and Exchange Commission (the “SEC”) for reporting on Form 10-Q. Accordingly, certain information and footnote disclosures normally included in financial statements prepared in accordance with U.S. GAAP have been condensed or omitted pursuant to such rules and regulations. These unaudited interim consolidated financial statements should be read in conjunction with the audited financial statements and related notes included in the Company’s Annual Report on Form 10-K for the year ended December 31, 2021 filed with the SEC on March 1, 2022.

In the opinion of management, the unaudited interim consolidated financial statements reflect all adjustments, which are normal recurring adjustments, necessary for the fair presentation of the financial information for the interim periods. The results of operations for the three months ended March 31, 2022 are not necessarily indicative of the operating results for the full fiscal year or any future period.

Acquisition of Assets of Jazz Pharmaceuticals

On March 25, 2022, the Company entered into an Asset Purchase Agreement (the “Asset Purchase Agreement”) with Jazz Pharmaceuticals plc (“Jazz Pharmaceuticals”), pursuant to which the Company will acquire Sunosi® from Jazz Pharmaceuticals (“the Acquisition”), a dual-acting dopamine and norepinephrine reuptake inhibitor indicated to improve wakefulness in adult patients living with excessive daytime sleepiness due to narcolepsy or obstructive sleep apnea, which was approved by the U.S. Food and Drug Administration, or the FDA, in 2019 and by the European Medicines Agency (the “EMA”) in 2020.

Under the terms of the Asset Purchase Agreement, the Company will receive from Jazz Pharmaceuticals worldwide commercial, development, manufacturing, and intellectual property rights to Sunosi, except for certain Asian markets. Jazz Pharmaceuticals will receive from the Company a total upfront payment of \$53 million, a high single-digit royalty on the Company’s U.S. net sales of Sunosi in the current indication, and a mid single-digit royalty on the Company’s U.S. net sales of Sunosi in future indications. The Company will also assume the commitments of Jazz Pharmaceuticals to SK Biopharmaceuticals (“SK”) and Aerial Biopharma (“Aerial”). SK is the originator of Sunosi and retains rights in 12 Asian markets, including China, Korea, and Japan. In 2014, Jazz Pharmaceuticals acquired from Aerial worldwide rights to Sunosi excluding those Asian markets. The assumed commitments to SK and Aerial include single-digit tiered royalties based on the Company’s sales of Sunosi, and up to \$165 million in revenue milestones and \$1 million in development milestones. The Company expects to finance the transaction via its existing \$300 million term loan facility with Hercules Capital, Inc. (see below).

The Purchase Agreement also provides for customary conditions to closing, including the receipt of antitrust approval from the Federal Trade Commission pursuant to the Hart-Scott-Rodino Act, and the receipt of certain required financial statements from Jazz required by Regulation S-X of the Securities Exchange Act of 1934, as amended. The Company expects the closing to occur in the second quarter of 2022 and therefore, purchase accounting is not reflected in these consolidated financial statements.

Second Amendment to the Loan and Security Agreement

On March 27, 2022, in connection with the Acquisition (as described above), the Company entered into a Second Amendment to the Loan and Security Agreement (the “Second Amendment”) with Hercules Capital, Inc. The Second Amendment amends the terms of that certain Loan and Security Agreement, dated as of September 25, 2020 (as amended by the First Amendment to the Loan and Security Agreement, dated of October 14, 2021) (the “Loan Agreement”). The changes in the Term Loan Advances (as defined in the Loan Agreement) amounts and dates are as follows: (i) increasing the Tranche 1 (as defined in the Loan Agreement) from \$60.0 million to \$95.0 million, whereby \$45.0 million is available upon the Second Amendment closing date (ii) changing the Tranche 2 Advances (as defined in the Loan Agreement) from two sub-tranches of \$50.0 million each to three sub-tranches of \$35.0 million, \$35.0 million and \$30.0 million, respectively, (iii) changing the Tranche 3 Advance (as defined in the Loan Agreement) from one tranche of \$20.0 million to two sub-tranches of \$15.0 million and \$5.0 million, respectively, (iv) decreasing the Tranche 4 Advance (as defined in the Loan Agreement) from \$55.0 million to \$50.0 million, and (v) decreasing the Tranche 5 Advance (as defined in the Loan Agreement) from \$75.0 million to \$35.0 million. In connection with the Second Amendment, the parties also clarified certain terms of the Warrant Agreement previously issued to Hercules. The Second Amendment shall only be effective upon the closing of the Acquisition.

Conditioned upon the closing of the Second Amendment, Hercules will also purchase between \$5.0 million and \$8.0 million of the Company’s unregistered common stock, at a share price equal to the lesser of (a) the three-day volume weighted average price as of the date of the Second Amendment, or (b) the three-day volume weighted average price as of the Second Amendment Effective Date, pursuant to a stock purchase agreement to be agreed upon by the parties; provided, that, in no case shall the share price be less than a 20% discount to the three-day volume weighted average price of the Company’s common stock at the time of the purchase.

Liquidity and Capital Resources

The Company has incurred operating losses since its inception and expects to continue to incur operating losses for the foreseeable future and may never become profitable. As of March 31, 2022, the Company had an accumulated deficit of \$448.8 million.

The Company’s primary sources of cash have been proceeds from the issuance and sale of its common stock in public offerings and the issuance of debt. The Company has not yet commercialized any of its product candidates and cannot be sure if it will ever be able to do so. The Company’s ability to achieve profitability depends on a number of factors, including its ability to obtain regulatory approval for its product candidates, successfully complete any post-approval regulatory obligations and successfully commercialize its product candidates alone or in partnership. The Company may continue to incur substantial operating losses even if it begins to generate revenues from its product candidates.

The Company believes its existing cash will be sufficient to fund its anticipated operating cash requirements for at least twelve months following the date of this filing. The actual amount of cash that the Company will need to operate is subject to many factors, including, but not limited to, the timing, design and conduct of clinical trials for its product candidates. The Company may use a combination of public and private equity offerings, debt financings, other third-party funding, strategic alliances, licensing arrangements or marketing and distribution arrangements if market conditions are favorable or as a result of other strategic considerations to finance its future cash needs.

The Company’s common stock is listed on the Nasdaq Global Market and trades under the symbol “AXSM”.

Impact of COVID-19

In December 2019, a novel (new) coronavirus known as SARS-CoV-2 was first detected in Wuhan, Hubei Province, People's Republic of China, causing outbreaks of the coronavirus disease, known as COVID-19, that has now spread globally. On January 30, 2020, the World Health Organization (WHO) declared COVID-19 a public health emergency. The Secretary of Health and Human Services declared a public health emergency in the United States on January 31, 2020, under section 319 of the Public Health Service Act (42 U.S.C. 247d), in response to the COVID-19 outbreak. On March 11, 2020, the WHO declared COVID-19 a global pandemic. The full impact of the ongoing COVID-19 pandemic is still unknown and rapidly evolving. While the potential economic impact brought by and over the duration of the COVID-19 pandemic may be difficult to assess or predict, the COVID-19 pandemic has resulted in significant disruption of global financial markets, which could in the future negatively affect the Company's liquidity. In addition, a recession or market volatility resulting from the COVID-19 pandemic could affect the Company's business. Given the nature and type of the Company's short-term investments, the Company does not believe the COVID-19 pandemic has had or will have a material impact on the Company's current investment liquidity.

Note 2. Summary of Significant Accounting Policies

Significant Risks and Uncertainties

The Company's operations are subject to a number of factors that can affect its operating results and financial condition. Such factors include, but are not limited to: the results of clinical testing and trial activities of the Company's product candidates; the Company's ability to obtain regulatory approval to market its products, if approved; competition from products manufactured and sold or being developed by other companies; the price of, and demand for, the Company's products, if approved; the Company's ability to negotiate favorable licensing or other manufacturing and marketing agreements for its products, if approved; and the Company's ability to raise additional financing. If the Company does not successfully commercialize any of its product candidates, it will be unable to generate recurring product revenue or achieve and maintain profitability.

Use of Estimates

Management considers many factors in developing the estimates and assumptions that are used in the preparation of these financial statements. Management must apply significant judgment in this process. In addition, other factors may affect estimates, including expected business and operational changes, sensitivity and volatility associated with the assumptions used in developing estimates, and whether historical trends are expected to be representative of future trends. The estimation process often may yield a range of potentially reasonable estimates of the ultimate future outcomes and management must select an amount that falls within that range of reasonable estimates. This process may result in actual results differing materially from those estimated amounts used in the preparation of the financial statements if these results differ from historical experience, or other assumptions do not turn out to be substantially accurate, even if such assumptions are reasonable when made. In preparing these financial statements, management used significant estimates in the following areas, among others: stock-based compensation expense; the determination of the fair value of the warrants; the accounting for research and development costs; and the recoverability of the Company's net deferred tax assets and related valuation allowance.

Foreign Currency Translation

Expenses denominated in foreign currency are translated into U.S. dollars at the exchange rate on the date the expense is incurred. Assets and liabilities of foreign operations are translated at period-end exchange rates. The effect of exchange rate fluctuations on translating foreign currency into U.S. dollars is included in the Statements of Operations and is not material to the Company's financial statements.

Segment and Geographic Information

Operating segments are defined as components of an enterprise for which separate discrete information is available for evaluation by the chief operating decision maker or decision-making group, in deciding how to allocate resources and in assessing performance. The Company views its operations and manages its business as one operating segment, which is the business of developing novel therapies for the management of CNS disorders.

Cash Equivalents

The Company considers all highly liquid investments that have maturities of three months or less when acquired to be cash equivalents. The Company's cash and cash equivalents includes holdings in checking and overnight sweep accounts. The Company's cash equivalents, which are money market funds held in a sweep account, are measured at fair value on a recurring basis. As of March 31, 2022, the balance of cash and cash equivalents was \$84.7 million, which approximates fair value and was determined based upon Level 1 inputs. The sweep account is valued using quoted market prices with no valuation adjustments applied. Accordingly, these securities are categorized as Level 1.

Concentration of Credit Risk

Financial instruments that potentially subject the Company to a concentration of credit risk consist of cash. The Company maintains its cash at financial institutions, which at times, exceed federally insured limits. At March 31, 2022, the majority of the Company's cash was held by one financial institution and the amount on deposit was in excess of Federal Deposit Insurance Corporation insurance limits. The Company has not recognized any losses from credit risks on such accounts since inception. The Company believes it is not exposed to significant credit risk on cash.

Fair Value of Financial Instruments

Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants at the measurement date. Assets and liabilities that are measured at fair value are reported using a three-level fair value hierarchy that prioritizes the inputs used to measure fair value. This hierarchy maximizes the use of observable inputs and minimizes the use of unobservable inputs. The three levels of inputs used to measure fair value are as follows:

Level 1—Quoted prices in active markets for identical assets or liabilities that the Company has the ability to access at the measurement date.

Level 2—Inputs other than quoted prices in active markets that are observable for the asset or liability, either directly or indirectly.

Level 3—Inputs that are unobservable for the asset or liability.

To the extent that valuation is based on models or inputs that are less observable or unobservable in the market, the determination of fair value requires more judgment. Accordingly, the degree of judgment exercised by the Company in determining fair value is greatest for instruments categorized in Level 3. A financial instrument's level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement.

The Company's financial instruments are cash, accounts payable, accrued liabilities, and current and long-term debt. The carrying values for cash, accounts payable and accrued liabilities reported in the accompanying consolidated financial statements approximate their respective fair values due to their short-term maturities. The carrying value of debt on the Company's balance sheet (see Note 6 – Loan and Security Agreement), is estimated to approximate its fair value as the interest rate approximates the market rate for loans with similar terms and risk characteristics.

Debt Issuance Costs

Debt issuance costs consist of costs incurred in obtaining long-term financing. These costs are classified on the consolidated balance sheet as a direct deduction from the carrying amount of the related debt liability. These expenses are deferred and amortized as part of interest expense in the consolidated statement of operations using the effective interest rate method over the term of the debt agreement.

Equipment

Equipment consists primarily of computer equipment and is recorded at cost. Equipment is depreciated on a straight-line basis over its estimated useful life, which the Company estimates to be three years. When equipment is sold or otherwise disposed of, the cost and related accumulated depreciation are removed from the accounts and the resulting gain or loss is included in operating expenses.

Research and Development Costs

Research and development costs are expensed as incurred. Research and development expenses consist primarily of employee-related expenses including salaries, benefits, travel, and stock-based compensation expense, contract services, costs incurred to third-party service providers for the conduct of research, preclinical and clinical studies, laboratory supplies, product license fees, consulting and other related expenses. We estimate research, preclinical and clinical study expenses based on services performed, pursuant to contracts with third-party research and development organizations that conduct and manage research, preclinical and clinical activities on our behalf. We estimate these expenses based on discussions with internal management personnel and external service providers as to the progress or stage of completion of services and the contracted fees to be paid for such services. If the actual timing of the performance of services or the level of effort varies from the original estimates, we will adjust the accrual accordingly. Payments associated with licensing agreements to acquire licenses to develop, use, manufacture and commercialize products that have not reached technological feasibility and do not have alternative future use are expensed as incurred. Payments made to third parties under these arrangements in advance of the performance of the related services by the third parties are recorded as prepaid expenses until the services are rendered.

Income Taxes

Income taxes are accounted for under the asset and liability method. Under this method, deferred tax assets and liabilities are recognized for the future tax consequences attributable to the differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases, operating losses, and tax credit carryforwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect of a change in tax rates on deferred tax assets and liabilities is recognized in income in the period that includes the enactment date. Valuation allowances are provided if, based upon the weight of available evidence, it is more likely than not that some or all of the deferred tax assets will not be realized.

The Company estimates an annual effective tax rate of 0% for the year ending December 31, 2022 and has not recorded an income tax benefit for the three months ended March 31, 2022 and 2021 since it determined that a full valuation allowance is required against the Company's deferred tax assets.

The Company recognizes the tax benefit from an uncertain tax position only if it is more likely than not to be sustained upon examination based on the technical merits of the position as well as consideration of the available facts and circumstances. When uncertain tax positions exist, the Company recognizes the tax benefit of tax positions to the extent that the benefit will more likely than not be realized. As of March 31, 2022, the Company does not believe any material uncertain tax positions are present. In the event the Company determines that accrual of interest or penalties are necessary in the future, the amount will be presented as a component of income tax expense.

Stock-Based Compensation

For stock options issued, the Company estimates the grant date fair value of each option using the Black-Scholes option pricing model. The Black-Scholes model takes into account the expected volatility of the Company's common stock, the risk-free interest rate, the estimated life of the option, the closing market price of the Company's common stock and the exercise price. The estimates utilized in the Black-Scholes calculation involve inherent uncertainties and the application of management's judgment. In addition, the Company recognizes expense for equity award forfeitures as they occur.

For restricted stock units ("RSUs"), the Company issues them in the form of Company common stock. The fair market value of these awards is based on the market closing price per share on the grant date.

For awards subject to service-based vesting conditions, the Company recognizes stock-based compensation expense on a straight-line basis over the requisite service period, which is generally the vesting term. For awards subject to performance-based vesting conditions, the Company recognizes stock-based compensation expense using the accelerated attribution method when it is probable that the performance condition will be achieved. The expense related to the stock-based compensation is recorded within the same financial statement line item as the grantee's cash compensation.

The Company's policy upon exercise of stock options and RSUs is that shares will be issued as new shares drawing on the Company's 2015 Omnibus Incentive Compensation Plan share pool that was adopted by the stockholders in November 2015.

Basic and Diluted Net Loss per Common Share

Basic net loss per share of common stock is computed by dividing net loss by the weighted average number of shares of common stock outstanding during the period. Diluted net loss per share of common stock includes the effect, if any, from the potential exercise or conversion of securities, such as warrants, stock options, and RSUs, which would result in the issuance of incremental shares of common stock. As the impact of these items is anti-dilutive during periods of net loss, there was no difference between basic and diluted net loss per share of common stock for the three months ended March 31, 2022 and 2021.

Leases

The Company determines if an arrangement is a lease at contract inception. Operating lease assets represent the Company's right to use an underlying asset for the lease term and operating lease liabilities represent the Company's obligation to make lease payments arising from the lease. When evaluating whether a contract contains a lease, the Company considers whether (1) the contract explicitly or implicitly identifies assets that are contractually defined and (2) the Company obtains substantially all of the economic benefits from the use of that underlying asset and directs how and for what purpose the asset is used during the term of the contract.

The Company's lease agreement contains lease and non-lease components. Non-lease components primarily include payments for maintenance and utilities. The Company has applied the practical expedient to combine fixed payments for non-lease components with lease payments and account for them together as a single lease component, which increases the amount of lease assets and corresponding liabilities. Payments under the Company's lease arrangement are primarily fixed, however variable payments, are expensed as incurred and not included in the operating lease asset and liability.

Operating lease assets and liabilities are recognized at the commencement date of the lease based upon the present value of lease payments over the lease term. When determining the lease term, the Company includes options to extend or terminate the lease when it is reasonably certain that the Company will exercise that option. The Company uses the implicit interest rate when readily determinable and uses the Company's incremental borrowing rate when the implicit rate is not readily determinable based upon the information available at the commencement date in determining the present value of the lease payments.

The Company's operating leases are reflected in the right-of-use operating asset; operating lease liability, current portion; and operating lease liability, long-term portion in the Company's consolidated balance sheets. Lease expense for minimum lease payments is recognized on a straight-line basis over the lease term. Short-term leases, defined as leases that have a lease term of 12 months or less at the commencement date, and do not include an option to extend the term or purchase the underlying asset that the Company is reasonably certain to exercise, are excluded from this treatment and are recognized on a straight-line basis over the term of the lease.

Recent Accounting Pronouncements

In October 2021, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2021-08, Business Combinations (Topic 805). This update requires that an entity (acquirer) recognize and measure contract assets and contract liabilities acquired in a business combination in accordance with Accounting Standards Codification ("ASC") 606. This differs from the current requirement to measure contract assets and contract liabilities acquired in a business combination at fair value. The amendments in this update should be applied prospectively, and are effective for fiscal years beginning after December 15, 2022, including interim periods within those fiscal years. Early adoption is permitted, including adoption in an interim period. The Company is currently evaluating the impact of this ASU on its consolidated financial statements.

Note 3. Accrued Expenses and Other Current Liabilities

At March 31, 2022 and December 31, 2021 accrued expenses and other current liabilities consisted of the following:

	March 31, 2022	December 31, 2021
Accrued research and development	\$ 2,726,847	\$ 2,416,897
Accrued compensation	2,013,040	4,050,236
Accrued general and administrative	5,856,779	2,442,700
Accrued Interest	390,556	385,347
Total	\$ 10,987,222	\$ 9,295,180

Note 4. Loan and Security Agreement

Hercules Capital, Inc.

In September 2020, the Company entered into a Loan and Security Agreement (the “Loan Agreement”) with Hercules Capital, Inc., in its capacity as administrative agent and collateral agent and as a lender (in such capacity, the “Agent” or “Hercules”) and the other financial institutions that from time to time become parties to the Loan Agreement as lenders (collectively, the “Lenders”). The Loan Agreement provides for term loans in an aggregate principal amount of up to \$225.0 million under multiple tranches (the “2020 Term Loan”). The tranches consist of (i) a first tranche consisting of term loans in an aggregate principal amount of \$60.0 million, of which \$50.0 million was funded to the Company on the Closing Date (the “First Advance”), and of which the remaining \$10.0 million was available at the Company’s option at any time through September 15, 2021; (ii) subject to the approval of the Company’s AXS-05 product candidate for the treatment of major depressive disorder (the “First Milestone”), a second tranche consisting of additional term loans in an aggregate principal amount of up to \$35.0 million, available at the Company’s option beginning on the date that the First Milestone is achieved through the earlier of (A) 181 days following such date and (B) June 30, 2022; (iii) subject to the approval of the Company’s AXS-07 product candidate for the treatment of migraine (the “Second Milestone”), a third tranche consisting of additional term loans in an aggregate principal amount of up to \$20.0 million, available at the Company’s option beginning on the date that the Second Milestone is achieved through the earlier of (A) 181 days following such date and (B) June 30, 2022; (iv) subject to the achievement of either the First Milestone or the Second Milestone and so long as the Company is in compliance with a required ratio of Lender indebtedness to net product revenue, a fourth tranche consisting of additional term loans in an aggregate principal amount of up to \$60.0 million, available at the Company’s option beginning on January 1, 2022 and continuing through March 31, 2023; and (v) subject to approval by the Lenders’ in their discretion, a fifth tranche of additional term loans in an aggregate principal amount of up to \$50.0 million, available through December 31, 2023. The remaining \$10.0 million on the first tranche was not utilized and such tranche and future tranches were amended upon the execution of the First Amendment to the Loan and Security Agreement. See “First Amendment to the Loan and Security Agreement” below for further information. The Company intends to use the proceeds of the Term Loan Advances for working capital and general corporate purposes. In addition, approximately \$21.7 million of the proceeds from the First Advance was used to satisfy in full and retire the Company’s indebtedness under the 2019 Term Loan (as defined below), as amended.

The outstanding principal balance of the term loans bears interest at an annual rate equal to the greater of either (i) the prime rate as reported in *The Wall Street Journal* plus 5.90% or (ii) 9.15%, subject to an ability by the Company, during certain periods (each, a “PIK Deferral Period”), to request a reduction of the then-effective cash-pay interest rate by up to 1.00% per annum (the “Cash Interest Reduction Amount”). Accrued interest is payable monthly following the funding of each term loan. During each PIK Deferral Period, the term loans will bear cash-pay interest, at the reduced amount, and will accrue paid-in-kind interest at a rate equal to the Cash Interest Reduction Amount multiplied by 1.15, which amount will be capitalized and added to the outstanding principal balance of the term loans on each monthly interest payment date during the PIK Deferral Period.

The Company is required to repay the term loans in equal installments of principal and interest commencing on May 1, 2023 through October 1, 2025 (the “Maturity Date”). However, if either the First Milestone or the Second Milestone are achieved prior to May 1, 2023, and no default exists, the amortization commencement date will be automatically extended to November 1, 2023; if both the First Milestone and the Second Milestone are achieved prior to November 1, 2023, and no default exists, the amortization commencement date will be further automatically extended to May 1, 2024 and if any term loans are funded under the fourth tranche noted above prior to May 1, 2024, and no default exists, the amortization commencement date will be further automatically extended to November 1, 2024. On the Maturity Date, all unpaid term loans will be due and payable.

As collateral for the obligations, the Company has granted to Hercules a senior security interest in all of Company’s right, title, and interest in, to and under all of Company’s property, inclusive of intellectual property, which includes one of the Company’s existing license agreements (the “License Agreement”) with Antecip Bioventures II LLC (“Antecip”), an entity owned by Axsome’s Chief Executive Officer and Chairman of the Board, Herriot Tabuteau, M.D., subject to limited exceptions. Antecip consented to the collateral assignment of the License Agreement, among other things, under a direct agreement (the “Direct Agreement”) with the Company and Hercules.

The Loan Agreement contains customary representations, warranties and covenants, including covenants by the Company limiting additional indebtedness, liens (including a negative pledge on intellectual property and other assets), guaranties, mergers and consolidations, substantial asset sales, investments and loans, certain corporate changes, transactions with affiliates and fundamental changes. At the initial closing, there were no applicable financial covenants contained in the Loan Agreement. Only after additional amounts are drawn down by the Company in the future, if the Company decides to do so, under the terms set forth in the Loan Agreement, there will be certain limited financial covenants that will apply, including:

- Effective upon the date the outstanding principal amount of the advances under the Loan Agreement equals or exceeds \$55.0 million, which has not yet occurred, the Company at all times thereafter must maintain cash in an account or accounts in which Hercules has a first priority security interest, in an aggregate amount greater than or equal to \$15.0 million, plus the amount of the Company's accounts payable under U.S. GAAP not paid after the 180th day following the invoice for such account payable (such amount, the "Qualified Cash A/P Amount").
- Effective upon the later of (i) the last calendar month of the calendar quarter that is twelve months following the earlier of (x) the date that the First Milestone is achieved and (y) the date that the Second Milestone is achieved, or (ii) the date on which the outstanding principal amount of the term loan advances under the Loan Agreement is equal to or greater than \$65.0 million, neither of which have occurred yet, the Company is required to (A) ensure that at all times its market capitalization exceeds \$2.0 billion, and that it maintains cash in an account which Hercules has a first priority security interest in an amount not less than 65% of the sum of the outstanding principal amount of the term loan advances *plus* the Qualified Cash A/P Amount, (B) ensure that at all times that it maintains cash in an account which Hercules has a first priority security interest in an amount not less than 100% of the sum of the outstanding principal amount of the term loan advances *plus* the Qualified Cash A/P Amount, or (C) achieve at least 60% of the net product revenue per the board of directors approved forecast solely from the sale of AXS-05 and AXS-07 (which may include royalty, profit sharing, or sales-based milestone revenue recognized in accordance with GAAP, but will not include any upfront or non-sales-based milestone payments under business development or licensing transactions), measured on a trailing six-month basis as of the date of the Company's most recent quarterly financial statement, determined on a quarterly basis.
- Restrictions on the Company's ability to incur additional indebtedness, pay dividends, encumber its intellectual property, or engage in certain fundamental business transactions, such as mergers or acquisitions of other businesses, with certain exceptions.

The Company's obligations under the Loan Agreement are subject to acceleration upon the occurrence of specified events of default, including payment default, insolvency and a material adverse change in the Borrower's business, operations or financial or other condition.

In addition, the Company is required to pay a final payment fee equal to the greater of (A) \$2,910,000 and (B) 4.85% of the aggregate amount of all term loan advances minus the aggregate amount of repayments made. The final payment fee is being accreted and amortized into interest expense using the effective interest rate method over the term of the loan.

The Company may, at its option prepay the term loans in full or in part, subject to a prepayment penalty equal to (i) 2.0% of the principal amount prepaid if the prepayment occurs prior to the first anniversary of the Closing Date, (ii) 1.5% of the principal amount prepaid if the prepayment occurs on or after the first anniversary and prior to the second anniversary of the Closing Date, and (iii) 1.0% of the principal amount prepaid if the prepayment occurs on or after the second anniversary and prior to the third anniversary of the Closing Date.

First Amendment to the Loan Agreement

On October 14, 2021 ("First Amendment Closing Date"), the Company entered into the first amendment to the Loan Agreement (the "First Amendment to the Loan Agreement").

Under the First Amendment to the Loan Agreement, the First Amendment amended the terms of that certain Loan and Security Agreement, dated as of September 25, 2020, by and among the Company, Hercules and the Lenders (the “Loan Agreement”) to, among other things, (i) increase the aggregate principal amount of the loan, available at the Company’s option, from \$225,000,000 to \$300,000,000, (ii) change the draw amounts and dates available in Tranche 2 through Tranche 5 including increasing the amount available under Tranche 2 subject to FDA approval of the Company’s AXS-05 product candidate for the treatment of major depressive disorder from \$35,000,000 to \$100,000,000, maintaining the amount available under Tranche 3 subject to FDA approval of the Company’s AXS-07 product candidate for the acute treatment of migraine of \$20,000,000, reducing the amount under Tranche 4 available upon achievement of certain combined sales and outstanding debt criteria from \$60,000,000 to \$55,000,000, and increasing the amount available under Tranche 5 to support future strategic initiatives, including further pipeline advancement or expansion from \$50,000,000 to \$75,000,000 subject to the approval from Hercules, (iii) extend the maturity date of the facility from the original October 2025 to October 2026, and optionally to October 2027, subject to certain conditions, (iv) reset and extend the interest only period from the initial 30 months from the original loan closing to 48 months from the First Amendment and extendable up to 60 months subject to FDA approval of the Company’s AXS-05 product candidate for the treatment of major depressive disorder and subject to FDA approval of AXS-07 in the acute treatment of migraine, and (v) decrease the interest rate from 9.15% (floating rate based on the greater of (a) 9.15% or (b) US WSJ Prime + 5.90%) to 8.95% (floating rate based on the greater of (a) 8.95% or (b) US WSJ Prime + 5.70%).

In addition, the Company is required to pay a final payment fee equal to (A) \$2,910,000 plus (B) 4.5% of the aggregate amount of all term future loan advances. The final payment fee is being accreted and amortized into interest expense using the effective interest rate method over the term of the loan.

The Company may, at its option prepay the term loans in full or in part, subject to a prepayment penalty equal to (i) 2.0% of the principal amount prepaid if the prepayment occurs prior to the first anniversary of the First Amendment Closing Date, (ii) 1.5% of the principal amount prepaid if the prepayment occurs on or after the first anniversary and prior to the second anniversary of the First Amendment Closing Date, and (iii) 1.0% of the principal amount prepaid if the prepayment occurs on or after the second anniversary and prior to the third anniversary of the First Amendment Closing Date. These percentages are unchanged from the Loan Agreement.

Second Amendment to the Loan Agreement

On March 27, 2022, the Company entered into the Second Amendment to the Loan Agreement subject to the closing of the Sunosi® Acquisition. See *Note 1 - Nature of Business and Basis of Presentation* for more detail.

Loan Interest Expense and Amortization

The Company incurred interest expense of \$1,123,958 for the three months ended March 31, 2022 and \$1,143,750 for the three months ended March 31, 2021, respectively. In addition, amortization of the final payment fee was \$97,860 for the three months ended March 31, 2022 and \$143,589 for the three months ended March 31, 2021, respectively. Amortization of the debt discount in relation to warrants and debt issuance costs was \$125,497 for the three months ended March 31, 2022 and \$132,508 for the three months ended March 31, 2021, respectively.

The outstanding debt and unamortized debt discount balances are as follows:

	March 31, 2022	December 31, 2021
Total Outstanding Debt	\$ 50,000,000	\$ 50,000,000
Add: accreted liability of final payment fee	804,053	706,407
Less: unamortized debt discount, long-term	(1,491,388)	(1,616,885)
Less: current portion of long-term debt	—	—
Loan payable, long-term	<u>\$ 49,312,665</u>	<u>\$ 49,089,522</u>

In connection with the entry into the Hercules Term Loan, the Company issued to Hercules a warrant to purchase a number of shares of the Company’s common stock equal to 2.5% of the aggregate amount of the Term Loan Advances that are funded. Further information on warrants issued related to this loan and prior debt financings and amendments are disclosed in Note 7 - Stockholders’ Equity under the “Warrants” section.

Scheduled Principal Payments on Outstanding Debt, as of March 31, 2022, are as follows:

2022	—
2023	—
2024	—
2025	8,026,818
2026	41,973,182
Total principal payments outstanding	<u>\$ 50,000,000</u>

The Company was in compliance with all covenants and requirements of its financing arrangements as of and during the three months ended March 31, 2022.

Note 5. Net Loss per Common Share

The following table sets forth the computation of basic and diluted net loss per common share:

	Three Months Ended March 31, 2022	
	2022	2021
Basic and diluted net loss per common share:		
Net loss	\$ (39,632,311)	\$ (29,259,970)
Weighted average common shares outstanding—basic and diluted	38,323,167	37,429,450
Net loss per common share—basic and diluted	<u>\$ (1.03)</u>	<u>\$ (0.78)</u>

The following potentially dilutive securities outstanding at March 31, 2022 and 2021 have been excluded from the computation of diluted weighted average shares outstanding, as they would be anti-dilutive:

	March 31,	
	2022	2021
Stock options	6,219,030	4,385,598
Restricted stock units	667,366	303,983
Warrants	15,541	15,541
Total	<u>6,901,937</u>	<u>4,705,122</u>

Note 6. Commitments and Contingencies

Operating Leases

For the three months ended March 31, 2022 and 2021, the Company had the following operating lease expense:

	Statement of Operations Location	Three Months Ended March	Three Months Ended March
		31, 2022	31, 2021
Operating lease expense	General and administrative	\$ 290,769	\$ 286,923
Total operating lease expense		<u>\$ 290,769</u>	<u>\$ 286,923</u>

Future minimum lease payments of the Company's operating leases as of March 31, 2022 were as follows:

2022	\$	885,000
2023		105,000
2024		—
2025		—
Thereafter		—
Total lease payments		990,000
Less imputed interest		(22,752)
Present value of operating lease liabilities	\$	967,248

In January 2022, the Company entered into an agreement to extend the lease of 22 Cortlandt Street for a term of six months from August 1, 2022 through January 31, 2023. As of March 31, 2022, the remaining lease term for our operating lease was 0.8 years with a discount rate of 6.0%. The interest rate implicit in lease contracts is typically not readily determinable and as such, the Company uses its incremental borrowing rate based on the information available at the lease commencement date, which represents an internally developed rate that would be incurred to borrow, on a collateralized basis, over a similar term, an amount equal to the lease payments in a similar economic environment.

Note 7. Stockholders' Equity

Capital Structure

In December 2019, the Company entered into the December 2019 Sales Agreement with SVB Leerink, pursuant to which the Company may sell up to \$80 million in shares of the Company's common stock from time to time through SVB Leerink, acting as the Company's sales agent, in one or more at-the-market offerings utilizing the 2019 Shelf Registration Statement. SVB Leerink is entitled to receive a commission of 3.0% of the gross proceeds for any shares sold under the December 2019 Sales Agreement. The December 2019 Sales Agreement was replaced by the March 2022 Sales Agreement (see below).

In March 2022, the Company entered into the March 2022 Sales Agreement with SVB Leerink, pursuant to which the Company may sell up to \$200 million in shares of the Company's common stock from time to time through SVB Leerink, acting as the Company's sales agent, in one or more at-the-market offerings utilizing the 2019 Shelf Registration Statement. SVB Leerink is entitled to receive a commission of 3.0% of the gross proceeds for any shares sold under the March 2022 Sales Agreement. The March 2022 Sales Agreement supersedes the December 2019 Sales Agreement, dated December 5, 2019, by and between the Company and SVB Leerink LLC.

Under the December 2019 Sales Agreement and March 2022 Sales Agreement, for the three months ended March 31, 2022, the Company received approximately \$32.0 million in gross proceeds through the sale of 1,044,081 shares, of which net proceeds were approximately \$31.0 million.

The holders of shares of common stock are entitled to one vote for each share of common stock held at all meetings of stockholders and written actions in lieu of meetings. The holders of shares of common stock are entitled to receive dividends, if and when declared by the board of directors.

Shelf Registration Statement

On December 5, 2019, the Company filed an automatic shelf registration statement ("2019 Shelf Registration") with the Securities and Exchange Commission ("SEC") for the issuance of common stock, preferred stock, warrants, rights, debt securities and units. It became effective upon filing with the SEC and is currently the Company's only active shelf registration. Through the date of this report, the Company has issued common stock of approximately \$261.2 million pursuant to such shelf registration statement.

Under SEC rules, the 2019 Shelf Registration Statement allows for the potential future offer and sale by the Company, from time to time, in one or more public offerings, of an indeterminate amount of the Company's common stock, preferred stock, debt securities, and units at indeterminate prices. At the time any of the securities covered by the 2019 Shelf Registration Statement are offered for sale, a prospectus supplement will be prepared and filed with the SEC containing specific information about the terms of any such offering.

Equity Incentive Plans

There were 2,187,058 shares available for the issuance of stock options or stock-based awards under the Company's 2015 Omnibus Incentive Compensation Plan at March 31, 2022.

Stock Options

The following table sets forth the stock option activity for the three months ended March 31, 2022:

	Number of shares	Weighted average exercise price	Weighted average contractual term	Aggregate intrinsic value
Outstanding at December 31, 2021	5,090,377	\$ 28.89		
Granted	1,223,019	30.05		
Exercised	(18,015)	10.08		
Forfeited	(67,139)	43.83		
Expired	(9,212)	53.10		
Outstanding at March 31, 2022	6,219,030	\$ 28.98	7.6	\$ 106,188,389
Vested and expected to vest at March 31, 2022	6,219,030	\$ 28.98	7.6	\$ 106,188,389
Exercisable at March 31, 2022	2,932,835	\$ 15.85	5.7	\$ 82,434,018

The fair value of each stock option grant is estimated on the date of grant using the Black-Scholes option pricing model. The expected term of the Company's stock options has been determined utilizing the "simplified" method as described in the SEC's Staff Accounting Bulletin No. 107 relating to stock-based compensation. The simplified method was chosen because the Company has limited historical option exercise experience due to its short operating history. The risk-free interest rate is based on the U.S. Treasury yield in effect at the time of grant for a period approximately equal to the expected term of the award. Expected dividend yield is based on the fact that the Company has never paid cash dividends and does not expect to pay any cash dividends in the foreseeable future. Expected volatility is based on historical volatilities of similar entities within the Company's industry which were commensurate with the Company's expected term assumption.

The weighted average grant date fair value of options granted was \$21.00 per option for the three months ended March 31, 2022. As of March 31, 2022, there was \$91.0 million of total unrecognized compensation cost related to non-vested stock options which is expected to be recognized over a weighted average period of 3.3 years. These amounts do not include 6,169 options outstanding as of March 31, 2022, which are performance-based and vest upon the achievement of certain corporate milestones. Stock-based compensation will be measured and recorded if and when it is probable that the milestone will occur.

Restricted Stock Units

In 2020, the Company began granting RSUs covering an equal number of its shares of common stock to employees. The fair value of RSUs is determined on the date of the grant based on the market price of its shares of common stock as of that date. The fair value of the RSUs is recognized as an expense ratably over the vesting period of four years. As of March 31, 2022, total compensation cost not yet recognized related to unvested RSUs was \$19.5 million, which is expected to be recognized over a weighted-average period of 3.6 years.

The following table sets forth the RSU activity for the three months ended March 31, 2022:

	Number of shares	Weighted average grant date fair value
Outstanding at December 31, 2021	302,764	\$ 42.93
Granted	429,902	23.27
Vested	(61,581)	41.49
Forfeited	(3,719)	48.73
Outstanding at March 31, 2022	<u>667,366</u>	<u>\$ 30.36</u>

Stock-based compensation expense recognized for the three months ended March 31, 2022 and 2021 was allocated as follows:

	Three Months Ended March 31,	
	2022	2021
Research and development	\$ 1,809,477	\$ 1,534,395
General and administrative	5,788,852	2,196,702
Total	<u>\$ 7,598,329</u>	<u>\$ 3,731,097</u>

Warrants

The following table summarizes warrant activity for the three months ended March 31, 2022:

	Warrants	Weighted average exercise price
Outstanding at December 31, 2021	15,541	\$ 80.43
Issued	—	—
Exercised	—	—
Outstanding at March 31, 2022	<u>15,541</u>	<u>\$ 80.43</u>

Outstanding Warrants

In connection with the first advance of the 2020 Term Loan, Hercules Capital Inc. received warrants to purchase an aggregate 15,541 shares of the Company's common stock at an exercise price of \$80.43 per share, which was the volume weighted average price of the Company's common stock over the ten-day trading period immediately preceding the initial closing, subject to certain limited adjustments as specified in the warrant. The warrants are exercisable for seven years from the date of issuance. The warrants were classified as a component of stockholders' equity. The relative fair value of the warrants of approximately \$0.9 million at the time of issuance, which was determined using the Black-Scholes option-pricing model, was recorded as additional paid-in capital and reduced the carrying value of the debt. The discount on the debt is being amortized to interest expense over the term of the debt utilizing the effective interest rate method.

Note 8. License Agreements

Exclusive License Agreement with Pfizer

In January 2020, the Company entered into an exclusive license agreement with Pfizer Inc. ("Pfizer") for Pfizer's clinical and nonclinical data, and intellectual property for reboxetine, the active pharmaceutical ingredient in AXS-12 which the Company is developing for the treatment of narcolepsy. The agreement also provides the Company exclusive rights to develop and commercialize esreboxetine, a new late-stage product candidate referred to as AXS-14, in the U.S. for the treatment of fibromyalgia.

Under the terms of the agreement, Pfizer received 82,019 shares of the Company's common stock having a stated value of \$8.0 million, based on the average closing price of the Company's common stock for the ten prior trading days of \$97.54, in consideration for the license and rights and also received an upfront cash payment of \$3.0 million. The Company determined that the fair value of each share of common stock granted to Pfizer on the closing date of January 9, 2020 was \$87.24, based on the closing price of the Company's stock on that date. As a result, the fair value of the stock issued was \$7.2 million and therefore, the total research and development expense recognized was \$10.2 million related to the Pfizer license agreement during the year ended 2020.

Pfizer can also receive up to \$323 million in regulatory and sales milestones, and tiered mid-single to low double-digit royalties on future sales related to the licensed products. Pfizer will also have a right of first negotiation on any potential future strategic transactions involving AXS-12 and AXS-14. During the three months ended March 31, 2022 and 2021, no milestone payments or royalties were paid to Pfizer by the Company.

Exclusive License Agreements with Antecip

In 2012, the Company entered into three exclusive license agreements with Antecip, in which it was granted exclusive licenses to develop, manufacture, and commercialize Antecip's patents and applications related to the development of AXS-02, AXS-05, and AXS-04, anywhere in the world for human therapeutic, veterinary, and diagnostic use. Pursuant to the agreements, the Company is required to use commercially reasonable efforts to develop, obtain regulatory approval for and commercialize AXS-02, AXS-05, and AXS-04. Under the terms of the agreements, the Company is required to pay to Antecip a royalty equal to 4.5% for AXS-02, 3.0% for AXS-05, and 1.5% for AXS-04, of net sales of products containing the licensed technology by the Company, its affiliates, or permitted sublicensees. These royalty payments are subject to reduction by an amount up to 50.0% of any required payments to third parties. Unless earlier terminated by a party for cause or by the Company for convenience, the agreements shall remain in effect on a product-by-product and country-by-country basis until the later to occur of (i) the applicable product is no longer covered by a valid claim in that country or (ii) 10 years from the first commercial sale of the applicable product in that country. Upon expiration of the agreements with respect to a product in a country, the Company's license grant for that product in that country will become a fully paid-up, royalty-free, perpetual non-exclusive license. If Antecip terminates any of the agreements for cause, or if the Company exercises its right to terminate any of the agreements for convenience, the rights granted to the Company under such terminated agreement will revert to Antecip. To date, the Company has not been required to make any payments to Antecip under any of the license agreements.

In connection with the 2020 Term Loan, the Company entered into a Direct Agreement with Antecip pursuant to which Antecip consented to the collateral assignment of the License Agreement to Hercules, among other things.

ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis contains forward-looking statements about our plans and expectations of what may happen in the future. Forward-looking statements are based on a number of assumptions and estimates that are inherently subject to significant risks and uncertainties, and our results could differ materially from the results anticipated by our forward-looking statements as a result of many known or unknown factors, including, but not limited to, those factors discussed in "Risk Factors." See also the "Cautionary Note Regarding Forward-Looking Statements" set forth at the beginning of this report.

You should read the following discussion and analysis in conjunction with the unaudited interim consolidated financial statements, and the related footnotes thereto, appearing elsewhere in this report, and in conjunction with management's discussion and analysis and the audited consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2021 which was filed with the Securities and Exchange Commission, or SEC, on March 1, 2022.

Overview

We are a biopharmaceutical company developing novel therapies for the management of central nervous system, or CNS, conditions that have limited treatment options. By focusing on this therapeutic area, we are addressing significant and growing markets where current treatment options are limited or inadequate. Our core CNS portfolio includes four CNS product candidates, AXS-05, AXS-07, AXS-12, and AXS-14 which are being developed for multiple indications.

AXS-05 is being developed for the treatment of major depressive disorder, or MDD, for which a New Drug Application, or NDA, has been submitted and accepted for filing by the FDA. The FDA had set a Prescription Drug User Fee Act (PDUFA) target action date for the AXS-05 NDA of August 22, 2021, which was not completed on such date and therefore the review of the application is ongoing. AXS-05 is also under development for the treatment of Alzheimer's disease agitation, or AD agitation. AXS-05 is also being developed for smoking cessation. AXS-07 is being developed for the acute treatment of migraine, for which an NDA has been submitted and accepted for filing by the FDA. The FDA had set a PDUFA target action date for the AXS-07 NDA of April 30, 2022. On April 29, 2022, we received a Complete Response Letter (CRL) from the FDA regarding the NDA for AXS-07 for the acute treatment of migraine. AXS-12 is being developed for the treatment of narcolepsy. AXS-14 is being developed for the treatment of fibromyalgia. Additionally, we are currently evaluating other product candidates, which we intend to develop for CNS disorders. We aim to become a fully integrated biopharmaceutical company that develops and commercializes differentiated therapies that increase available treatment options and improve the lives of patients living with CNS disorders.

AXS-05 is a novel, oral, investigational NMDA, or N-methyl-D-aspartate, receptor antagonist with multimodal activity under development for the treatment of CNS disorders. AXS-05 consists of a proprietary formulation and dose of dextromethorphan and bupropion and utilizes our metabolic inhibition technology. The dextromethorphan component of AXS-05 is an uncompetitive antagonist of the NMDA, an ionotropic glutamate receptor. The dextromethorphan component of AXS-05 is also a sigma-1 receptor agonist. The bupropion component of AXS-05 serves to increase the bioavailability of dextromethorphan and is a norepinephrine and dopamine reuptake inhibitor. We are seeking FDA approval for AXS-05 utilizing the 505(b)(2) regulatory development pathway. AXS-05 has been granted FDA Breakthrough Therapy designation for both the treatment of MDD and the treatment of Alzheimer's disease agitation, as well as Fast Track designations for the treatment of Alzheimer's disease agitation and treatment resistant depression.

We have completed two pivotal trials, one Phase 2 and one Phase 3, of AXS-05 in MDD, which we refer to as the ASCEND and GEMINI trials, respectively. AXS-05 achieved the primary endpoint in both the ASCEND and GEMINI trials. A Phase 3, open-label, long-term safety study with AXS-05 in patients with MDD and TRD known as the COMET trial has also been completed. Additionally, three Phase 2 open-label efficacy sub-studies of the COMET trial have been completed. These sub-studies evaluated the efficacy and safety of AXS-05 in three clinically pertinent MDD patient populations: the COMET-TRD trial in treatment resistant MDD (TRD), the COMET-AU trial in antidepressant unresponsive MDD, and the COMET-SI trial in MDD with suicidal ideation. In the overall COMET trial, AXS-05 treatment resulted in rapid, substantial, and durable improvement in depressive symptoms, measured using the MADRS, which was sustained or increased with long-term treatment. Additionally, AXS-05 was well tolerated with long-term dosing. Similar findings of rapid and durable improvements in depressive symptoms were demonstrated in the COMET-AU and COMET-TRD sub-studies. In the COMET-SI trial, a rapid reduction in suicidal ideation was observed with AXS-05 treatment, as demonstrated by reductions in the MADRS-SI score. We have completed a Phase 3 trial of AXS-05 in TRD, which we refer to as the STRIDE-1 trial, which met key secondary endpoints but did not reach statistical significance on the primary endpoint. Additionally, we have completed a Phase 2, double-blind, placebo-controlled, multi-center, relapse prevention study in patients with TRD, which we call the MERIT trial. In the MERIT trial, AXS-05 achieved its primary and secondary endpoints by delaying time to relapse and preventing relapse as compared to placebo. We have also completed a Phase 2/3 trial of AXS-05 in AD agitation, which we refer to as the ADVANCE trial. AXS-05 achieved the primary endpoint in the ADVANCE trial. We are conducting the ACCORD trial, a Phase 3, double blind, placebo-controlled, randomized withdrawal trial in patients with AD agitation, and one open-label long-term safety study in AD agitation. AXS-05 is also being developed as an aid to smoking cessation treatment and a positive Phase 2 trial in this indication has been completed under a research collaboration with Duke University. We have submitted an NDA for AXS-05 for the treatment of MDD supported by the positive results from the ASCEND and GEMINI trials which was accepted for filing by the FDA and was granted Priority Review, resulting in a PDUFA target action date of August 22, 2021. On August 20, 2021, the FDA informed us that its review would not be completed by the PDUFA target action date and the review of the application is ongoing.

AXS-07 is a novel, oral, rapidly absorbed, multi-mechanistic, investigational medicine under development for the acute treatment of migraine. AXS-07 consists of MoSEIC™, or Molecular Solubility Enhanced Inclusion Complex, meloxicam and rizatriptan. Meloxicam is a long-acting nonsteroidal anti-inflammatory drug, or NSAID, with COX-2, an enzyme involved in inflammation and pain pathways, preferential inhibition and potent pain-relieving effects. However, standard meloxicam has an extended time to maximum plasma concentration, or Tmax, which delays its onset of action. AXS-07 utilizes our proprietary MoSEIC™ technology to substantially increase the solubility and speed the absorption of meloxicam while potentially maintaining durability of action. Meloxicam is a new molecular entity for migraine enabled by our MoSEIC™ technology. Rizatriptan is a 5-HT_{1B/1D} agonist that inhibits calcitonin gene-related peptide (CGRP)-mediated vasodilation, has been shown to have central trigeminal antinociceptive activity, and may reduce the release of inflammatory mediators from trigeminal nerves. Rizatriptan is approved as a single agent for the acute treatment of migraine. We are seeking FDA approval for AXS-07 utilizing the 505(b)(2) regulatory development pathway.

We have completed two Phase 3 trials of AXS-07 for the acute treatment of migraine, which we refer to as the MOMENTUM and INTERCEPT trials. AXS-07 achieved the co-primary endpoints in both the MOMENTUM and INTERCEPT trials. An open-label, long-term, safety study of AXS-07 in patients with migraine known as the MOVEMENT trial has also been completed. In the MOVEMENT trial, administration of AXS-07 resulted in rapid, and substantial relief of migraine pain and associated symptoms and was well tolerated with long term dosing. We have submitted an NDA for AXS-07 for the acute treatment of migraine supported by the positive results from the MOMENTUM and INTERCEPT trials which was accepted for filing by the FDA with a PDUFA target action date of April 30, 2022. On April 29, 2022, the Company received a CRL from the FDA regarding its NDA for AXS-07 for the acute treatment of migraine. The CRL did not identify or raise any concerns about the clinical efficacy or safety data in the NDA, and the FDA did not request any new clinical trials to support the approval of AXS-07. The principal reasons given in the CRL relate to chemistry, manufacturing, and controls considerations. The Company believes that the issues raised in the CRL are addressable and intends to provide potential timing for a resubmission following consultation with the FDA.

AXS-12, reboxetine, is a novel, oral, investigational medicine in development for the treatment of narcolepsy. AXS-12 is a highly selective and potent norepinephrine reuptake inhibitor. AXS-12 has been granted FDA Orphan Drug Designation for the treatment of narcolepsy. We have completed a Phase 2 trial with AXS-12, which we refer to as the CONCERT study. A randomized, placebo-controlled Phase 3 trial with AXS-12 in narcolepsy was initiated in the third quarter of 2021, which we refer to as the SYMPHONY study, and one open-label long-term safety extension study was also initiated.

AXS-14, esreboxetine, is a novel, oral, investigational medicine in development for the treatment of fibromyalgia. AXS-14 is a highly selective and potent norepinephrine reuptake inhibitor. We are initially developing esreboxetine for the management of fibromyalgia. Esreboxetine, the SS-enantiomer of reboxetine, is more potent and selective than racemic reboxetine. We have in-licensed data from Pfizer which includes a completed Phase 2 trial and Phase 3 trial in fibromyalgia, both of which were positive. We plan to submit an NDA for AXS-14 in 2023 for the management of fibromyalgia based on a pre-NDA meeting with the FDA which occurred in the second quarter of 2021.

Since our incorporation in January 2012, our operations to date have included organizing and staffing our company, business planning, raising capital, developing our compounds, and engaging in other discovery and preclinical activities. Subsequent to our IPO, through proceeds from sales of our common stock and warrants to purchase shares of our common stock to equity investors and debt borrowings. For a further discussion, see the section entitled “Liquidity and Capital Resources” below.

Our ability to become profitable depends on our ability to generate revenue. We do not expect to generate significant revenue unless and until we or our collaborators obtain marketing approval for and successfully commercialize one of our product candidates.

We have incurred significant operating expenses and net losses since inception. We incurred net losses of \$39.6 million and \$29.3 million for the three months ended March 31, 2022 and 2021, respectively. Our accumulated deficit as of March 31, 2022 was \$448.8 million, and we expect to incur significant expenses and increasing operating losses for the foreseeable future. We expect to continue to incur expenses in connection with the development of our product candidates, including with respect to conducting clinical trials and seeking regulatory approval for our current product candidates and any other product candidates that we develop or in-license and advance to clinical development. In preparation for obtaining regulatory approval for our product candidates, we expect to incur significant expenses in order to create an infrastructure and market readiness to support the commercialization of the product candidates, including manufacturing, sales, marketing, and distribution functions. Further, we have incurred and will continue to incur additional costs associated with operating as a public company. Accordingly, we will need additional financing to support our continuing operations. We will seek to fund our operations through public and/or private equity, debt financings or other sources. Adequate additional financing may not be available to us on acceptable terms, or at all. Our failure to raise capital as and when needed would have a negative impact on our financial condition and our ability to pursue our business strategy. We will need to generate significant revenue to achieve profitability, and we may never do so.

Year to Date and Recent Developments

Acquisition of Assets of Jazz Pharmaceuticals

On March 25, 2022, the Company entered into an Asset Purchase Agreement with Jazz Pharmaceuticals plc (“Jazz Pharmaceuticals”), pursuant to which the Company will acquire Sunosi® from Jazz Pharmaceuticals (the “Acquisition”), a dual-acting dopamine and norepinephrine reuptake inhibitor indicated to improve wakefulness in adult patients living with excessive daytime sleepiness due to narcolepsy or obstructive sleep apnea, which was approved by the FDA in 2019 and by the European Medicines Agency (the “EMA”) in 2020.

AXS-05

In January 2022, we provided a response to the FDA addressing the two, previously disclosed, deficiencies related to analytical methods in the Chemistry, Manufacturing, and Controls, or CMC, section of our NDA for AXS-05 for the treatment of major depressive disorder. At this time, we have not been made aware of any other deficiencies related to the NDA by the FDA.

In April 2022, we announced that it has received and agreed to Postmarketing Requirements/Commitments proposed by the FDA with respect to the NDA for our AXS-05 product candidate for the treatment of major depressive disorder.

Based on this interaction, we anticipate potential FDA action on the NDA in the second quarter of 2022.

AXS-07

On February 2022, we entered into a Litigation Discontinuance Agreement with Baudax Bio, Inc. (“Baudax”) pursuant to which Baudax was to voluntarily dismiss, with prejudice, its lawsuit against us in the United States District Court for the District of Delaware (the “Baudax Action”). The Baudax Action, which was never served on us, alleged that our AXS-07 drug

product candidate infringes on U.S. Patents 8,512,727 and 10,471,067, both owned by assignment by Baudax. A notice of dismissal with prejudice was filed by Baudax in the Baudax action on February 7, 2022.

In April 2022, we received a Complete Response Letter, or CRL, from the FDA regarding our NDA for AXS-07 for the acute treatment of migraine. The CRL did not identify or raise any concerns about the clinical efficacy or safety data in the NDA, and the FDA did not request any new clinical trials to support the approval of AXS-07. The principal reasons given in the CRL relate to chemistry, manufacturing, and controls (CMC) considerations.

Financial

In March 2022, we entered into a Sales Agreement with SVB Securities LLC, or SVB Securities, with respect to an at the market offering program, under which we may, from time to time in our sole discretion, issue and sell through SVB Securities, acting as sales agent, shares of our common stock of up to \$200 million. The Agreement supersedes the prior Sales Agreement, dated December 5, 2019, by and between us and SVB Leerink LLC.

In March 2022, in connection with the Acquisition (as described above), the Company entered into a Second Amendment to Loan and Security Agreement (the "Second Amendment") with Hercules Capital, Inc. The Second Amendment amends the terms of that certain Loan and Security Agreement, dated as of September 25, 2020, by and among the Company, Hercules and the Lenders (as amended by that certain First Amendment to Loan and Security Agreement, dated as of October 14, 2021). In connection with the Second Amendment, the parties also clarified certain terms of the Warrant Agreement previously issued to Hercules. The Second Amendment shall only be effective upon the closing of the Acquisition.

Financial Overview

Revenue

We have not generated any revenue and have incurred significant operating losses since inception, and we do not expect to generate any revenue from the sale of any products unless or until we obtain regulatory approval. If we fail to complete the development of our product candidates in a timely manner or obtain regulatory approval for them, our ability to generate future revenue, and our results of operations and financial position, would be materially and adversely affected. If we enter into licensing or collaboration arrangements, such agreements may generate revenue in the future.

Research and Development Expenses

Research and development expenses primarily include preclinical studies, clinical trials, manufacturing costs, employee-related expenses including salaries, benefits, travel, and stock-based compensation expense, contract services, including external research and development expenses incurred under arrangements with third parties, such as contract research organizations, or CROs, facilities costs, overhead costs, depreciation, and other related costs.

Research and development activities are central to our business model. We have and will incur substantial costs beyond our present and planned clinical trials in order to file a new drug application, or NDA, for any of our product candidates. It is difficult to determine with certainty the costs and duration of our current or future clinical trials and preclinical studies, or if, when, or to what extent we will generate revenue from the commercialization and sale of our product candidates if we obtain regulatory approval. We may never succeed in achieving regulatory approval. The duration, costs, and timing of clinical trials and development of our product candidates will depend on a variety of factors, including the uncertainties of future clinical trials and preclinical studies, uncertainties in clinical trial enrollment rate, and significant and changing government regulation. In addition, the probability of success for each product candidate will depend on numerous factors, including competition, manufacturing capability, and commercial viability. We will determine which programs to pursue and how much to fund each program in response to the scientific and clinical success of each product candidate, as well as an assessment of each product candidate's commercial potential.

Management considers many factors in developing the estimates and assumptions that are used in the preparation of these financial statements. Management must apply significant judgment in this process. In addition, other factors may affect estimates, including expected business and operational changes, sensitivity and volatility associated with the assumptions used in developing estimates, and whether historical trends are expected to be representative of future trends. The estimation process often may yield a range of potentially reasonable estimates of the ultimate future outcomes and management must select an amount that falls within that range of reasonable estimates. This process may result in actual results differing materially from those estimated amounts used in the preparation of the financial statements if these results differ from historical experience, or other assumptions do not turn out to be substantially accurate, even if such assumptions are reasonable when made.

The following table summarizes our research and development expenses for our primary programs for the three months ended March 31, 2022 and 2021:

	Three Months Ended March 31,	
	2022	2021
AXS-05	\$ 6,030,440	\$ 10,044,146
AXS-07	2,146,487	2,531,549
AXS-12	1,881,536	733,858
AXS-14	241,347	—
Other research and development	475,854	1,751,741
Stock-based compensation	1,809,477	1,534,395
Total research and development expenses	\$ 12,585,141	\$ 16,595,689

Other research and development expenses primarily consist of employee salaries and benefits, facilities, and overhead costs.

General and Administrative Expenses

General and administrative expenses primarily consist of salaries and related costs for personnel in executive, commercial, finance, and operational functions, including stock-based compensation and travel expenses. Also included in general and administrative expenses are pre-commercialization costs, facility-related costs, insurance expense, professional fees for legal and accounting services, and patent filing and prosecution costs. General and administrative expenses are expensed when incurred.

Interest income (expense)

Interest income (expense) primarily consists of cash interest and non-cash costs related to our term loans (see “Liquidity and Capital Resources” below for a further discussion). We amortize these costs over the term of our debt agreements as interest expense in our consolidated statement of operations. Interest income (expense) also includes interest income earned on cash.

Critical Accounting Policies and Significant Judgments and Estimates

This discussion and analysis of our financial condition and results of operations is based on our consolidated financial statements, which have been prepared in accordance with generally accepted accounting principles in the United States of America, or U.S. GAAP. The preparation of these consolidated financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of expenses during the reported period. In accordance with GAAP, we base our estimates on historical experience and on various other assumptions that we believe are reasonable under the circumstances. Actual results may differ from these estimates under different assumptions or conditions.

There have been no material changes to our critical accounting policies since the beginning of our fiscal year. Our critical accounting policies are described in “Management’s Discussion and Analysis of Financial Condition and Results of Operations” included in our Annual Report on Form 10-K for the year ended December 31, 2021 and in the notes to the condensed consolidated financial statements appearing elsewhere in this Quarterly Report on Form 10-Q.

Results of Operations

The following table summarizes our results of operations for the periods indicated:

	Three Months Ended March 31,	
	2022	2021
Operating expenses:		
Research and development	\$ 12,585,141	\$ 16,595,689
General and administrative	25,703,731	11,248,372
Total operating expenses	38,288,872	27,844,061
Loss from operations	(38,288,872)	(27,844,061)
Interest income (expense)	(1,343,439)	(1,415,909)
Net loss	\$ (39,632,311)	\$ (29,259,970)

Comparison of the three months ended March 31, 2022 and 2021

Research and Development Expenses. Our research and development expenses for the three months ended March 31, 2022 were \$12.6 million, compared to \$16.6 million for the three months ended March 31, 2021, a decrease of \$4.0 million. The decrease was driven by expenses related to the NDA filing which occurred in the prior comparable period.

General and Administrative Expenses. Our general and administrative expenses for the three months ended March 31, 2022 were \$25.7 million, compared to \$11.2 million for the three months ended March 31, 2021, an increase of \$14.5 million. The increase was primarily related to pre-commercial activities and personnel expense, along with an increase in non-cash stock compensation expense.

Interest income (expense). Interest and amortization of debt discount expense for the three months ended March 31, 2022 was \$1.3 million, compared to \$1.4 million for the three months ended March 31, 2021, a decrease of \$0.1 million. The decrease is mainly due to a lower interest rate on our debt as compared to the prior comparable period since we amended our loan and security agreement with Hercules in October 2021.

Liquidity and Capital Resources

Since our inception through March 31, 2022, we have financed our operations primarily through proceeds from equity offerings and debt borrowings. See discussion below.

On December 5, 2019, we filed an automatic shelf registration statement with the SEC for the issuance of common stock, preferred stock, warrants, rights, debt securities and units up to an unlimited amount, which we refer to as the 2019 Shelf Registration Statement. It was declared effective by the SEC upon filing. As discussed in greater detail below, we entered into a sales agreement in December 2019 pursuant to which we sold shares of our common stock from time to time in an at-the-market offering and completed an offering of common stock in December 2019, each utilizing the 2019 Shelf Registration Statement. In the future, we may conduct additional offerings of one or more of these securities utilizing the 2019 Shelf Registration Statement in such amounts, prices and terms to be announced when and if the securities are offered. At the time any of our securities covered by the 2019 Shelf Registration Statement are offered for sale, a prospectus supplement will be prepared and filed with the SEC containing specific information about the terms of any such offering.

In December 2019, we entered into the December 2019 Sales Agreement with SVB Leerink, pursuant to which we may sell up to \$80 million in shares of our common stock from time to time through SVB Leerink, acting as our sales agent, in one or more at-the-market offerings utilizing the 2019 Shelf Registration Statement. SVB Leerink is entitled to receive a commission of 3.0% of the gross proceeds for any shares sold under the December 2019 Sales Agreement.

In March 2022, we entered into the March 2022 Sales Agreement with SVB Securities, pursuant to which we may sell up to \$200 million in shares of our common stock from time to time through SVB Securities, acting as our sales agent, in one or more at-the-market offerings utilizing the 2019 Shelf Registration Statement. SVB Securities is entitled to receive a commission of 3.0% of the gross proceeds for any shares sold under the March 2022 Sales Agreement. The March 2022 Sales Agreement supersedes the December 2019 Sales Agreement, dated December 5, 2019, by and between the Company and SVB Leerink LLC.

Under both the December 2019 and March 2022 Sales Agreements, for the three months ended March 31, 2022, we received approximately \$32.0 million in gross proceeds through the sale of 1,044,081 shares, of which net proceeds were approximately \$31.0 million.

In September 2020, we entered into the Loan Agreement with Hercules for the 2020 Term Loan, which consists of several tranches in an aggregate amount of up to \$225.0 million. The first tranche consists of term loans in the amount of \$60.0 million, of which \$50.0 million was funded shortly after executing the Loan Agreement and the remaining \$10.0 million was available at our option at any time through September 15, 2021. A portion of the initial tranche was used to repay the 2019 Term Loan along with associated final payment fees. The remaining \$115 million may be drawn at our option, in three separate tranches, as described below under “Contractual Obligations and Commitments - September 2020 Loan and Security Agreement – Hercules.” An additional \$50 million is available, subject to the approval of Hercules, to support future strategic initiatives, including further pipeline advancement or expansion. The 2020 Term Loan bears interest at a calculated prime-based variable rate currently at 9.15%. It matures in October 2025 and has an initial interest-only payment period of 30 months, which may be extended to up to 48 months upon the drawing of future tranches. The remaining \$10 million on the first tranche was not utilized and such tranche and future tranches were amended upon the execution of the First Amendment to the Loan and Security Agreement (see below).

In October 2021, we amended the Loan Agreement with Hercules, which expanded the facility amount of up to \$300 million and now has a maturity date of October 2026. See 'Contractual Obligations and Commitments - October 2021 First Amendment to the Loan and Security Agreement – Hercules' section below for more information.

In March 2022, we entered into a Second Amendment to Loan and Security Agreement with Hercules Capital, Inc. The Second Amendment amends the terms of that certain Loan and Security Agreement, dated as of September 25, 2020, by and among us, Hercules and the Lenders (as amended by that certain First Amendment to Loan and Security Agreement, dated as of October 14, 2021, and as further amended by the Second Amendment). In connection with the Second Amendment, the parties also clarified certain terms of the Warrant Agreement previously issued to Hercules. The Second Amendment shall only be effective upon the closing of the Acquisition.

In the future, we may conduct additional offerings of one or more of the securities covered by the 2019 Shelf Registration Statement in such amounts, prices and terms to be announced when and if the securities are offered. At the time any of our securities covered by the 2019 Shelf Registration Statement are offered for sale, a prospectus supplement will be prepared and filed with the SEC containing specific information about the terms of any such offering.

We believe that our current available cash, along with the remaining committed capital from the \$300 million term loan facility, is sufficient to fund anticipated operations into 2024, based on the current operating plan, which includes the potential launch of AXS-05 in MDD, and the acquisition and commercialization of Sunosi. Because the process of commercializing products and evaluating product candidates in clinical trials is costly and the timing of progress in these trials is uncertain, it is possible that the assumptions upon which we have based this estimate may prove to be wrong, and we could use our capital resources sooner than we currently expect.

Cash Flows

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

	Three Months Ended March 31,	
	2022	2021
Net cash (used in) provided by:		
Operating activities	\$ (32,652,980)	\$ (27,215,489)
Investing activities	(213,736)	(29,995)
Financing activities	31,101,644	8,029,163
Net increase (decrease) in cash	<u>\$ (1,765,072)</u>	<u>\$ (19,216,321)</u>

Operating Activities. Cash used in operating activities for the three months ended March 31, 2022 was \$32.7 million as compared to \$27.2 million for the three months ended March 31, 2021. The increase of \$5.5 million in net cash used was mainly due to the pre-commercialization activities.

Investing Activities. Cash used in investing activities for the purchase of property and equipment for the three months ended March 31, 2022 was \$0.2 million and was less than \$0.1 million for the three months ended March 31, 2021. The increase of \$0.2 million was due to pre-commercialization activities.

Financing Activities. Cash provided by financing activities was \$31.1 million for the three months ended March 31, 2022, which included net proceeds from the sale of common stock through our Sales Agreement with SVB Securities of \$31.0 million and proceeds from the issuance of common stock upon exercise of employee stock options of \$0.2 million. Cash provided by financing activities was \$8.0 million for the three months ended March 31, 2021, which included net proceeds from the sale of common stock through our Sales Agreement with SVB Leerink of \$6.1 million and proceeds from the issuance of common stock upon exercise of employee stock options of \$1.9 million.

Funding requirements

We have not achieved profitability since our inception and we expect to continue to incur significant losses for the foreseeable future. We expect our losses to increase as we continue the development of and seek regulatory approvals for our product candidates and begin to commercialize any approved products. We are subject to all of the risks pertinent to the development of new product candidates, and we may encounter unforeseen expenses, difficulties, complications, delays, and other unknown factors that may harm our business.

We may need to raise additional financing in the future to fund our operations. In the event that we need additional financing, we may incur additional debt, license certain intellectual property, and seek to sell additional equity or convertible securities that may result in dilution to our stockholders. If we raise additional funds through the issuance of equity or convertible securities, these securities could have rights or preferences senior to those of our common stock and could contain covenants that restrict our operations. There can be no assurance that we will be able to obtain additional equity or debt financing on terms acceptable to us, if at all. Our future capital requirements will depend on many factors, including:

- the scope, rate of progress, results, and cost of our clinical studies and other related activities;
- our ability to enter into collaborative agreements for the development and commercialization of our product candidates;
- the number and development requirements of any other product candidates that we pursue;
- the costs, timing, and outcome of regulatory reviews of our product candidates;
- the costs and timing of future commercialization activities, including product manufacturing, marketing, sales, and distribution, for any of our product candidates for which we receive marketing approval;
- any product liability or other lawsuits related to our product candidates;
- the expenses needed to attract and retain skilled personnel;
- the general and administrative expenses related to being a public company;

- the revenue, if any, received from commercial sales of our product candidates for which we receive marketing approval; and
- the costs involved in preparing, filing, and prosecuting patent applications, maintaining and enforcing our intellectual property rights, and defending our intellectual property-related claims.

Please see “Risk Factors” for additional risks associated with our substantial capital requirements.

Contractual Obligations and Commitments

License agreement with Pfizer

In January 2020, we entered into a license agreement with Pfizer. Under the terms of our exclusive license agreement with Pfizer, Pfizer received 82,019 shares of our common stock having a stated value of \$8.0 million, based on the average closing price of our common stock for the ten prior trading days of \$97.54, in consideration for the license and rights. Pfizer also received an upfront cash payment of \$3.0 million. We determined that the fair value of each share of common stock granted to Pfizer on the closing date of January 9, 2020 was \$87.24, based on the closing price of our common stock on that date. As a result, the fair value of the stock issued was \$7.2 million.

Pfizer can also receive up to \$323 million upon the achievement of certain regulatory and sales milestones, and tiered mid-single to low double-digit royalties on future sales. Pfizer will also have a right of first negotiation on any potential future strategic transactions involving AXS-12 and AXS-14.

License agreements with Antecip Bioventures

Under three exclusive license agreements with Antecip Bioventures II LLC, or Antecip, an entity owned by our Chief Executive Officer and Chairman of the Board, Herriot Tabuteau, M.D., we are obligated to make specified royalty payments ranging from 1.5% to 4.5%, subject to up to a 50% reduction depending on required payments to third parties, on net sales of licensed products. The amount, timing, and likelihood of such payments are not known.

In connection with the 2020 Term Loan, Antecip consented to the collateral assignment of one of the license agreements, among other things, under a direct agreement with us and Hercules.

In September 2020, we entered into the Loan Agreement with Hercules, in its capacity as administrative agent and collateral agent and as a lender, and the other financial institutions that may from time to time become parties to the Loan Agreement as lenders, which we collectively refer to as the Lenders. The Loan Agreement provides for term loans in an aggregate principal amount of up to \$225.0 million under multiple tranches. The tranches consist of (i) a first tranche consisting of term loans in an aggregate principal amount of \$60.0 million, of which \$50.0 million, or the First Advance, was funded at closing, and of which the remaining \$10.0 million was available at our option at any time through September 15, 2021; (ii) subject to the FDA approval of our AXS-05 product candidate for the treatment of major depressive disorder, or the First Milestone, a second tranche consisting of additional term loans in an aggregate principal amount of up to \$35.0 million, available at our option beginning on the date that the First Milestone is achieved through the earlier of (A) 181 days following such date and (B) June 30, 2022; (iii) subject to the approval of our AXS-07 product candidate for the treatment of migraine, or the Second Milestone, a third tranche consisting of additional term loans in an aggregate principal amount of up to \$20.0 million, available at our option beginning on the date that the Second Milestone is achieved through the earlier of (A) 181 days following such date and (B) June 30, 2022; (iv) subject to the achievement of either the First Milestone or the Second Milestone and so long as we are in compliance with a required ratio of Lender indebtedness to net product revenue, a fourth tranche consisting of additional term loans in an aggregate principal amount of up to \$60.0 million, available at our option beginning on January 1, 2022 and continuing through March 31, 2023; and (v) subject to approval by the Lenders in their discretion, a fifth tranche of additional term loans in an aggregate principal amount of up to \$50.0 million, available through December 31, 2023. The remaining \$10 million on the first tranche was not utilized and such tranche and future tranches were amended upon the execution of the First Amendment to the Loan and Security Agreement. See "October 2021 First Amendment to the Loan and Security Agreement – Hercules" below for further information. We intend to use the proceeds of the Term Loan Advances for working capital and general corporate purposes. In addition, approximately \$21.7 million of the proceeds from the First Advance was used to satisfy in full and retire our indebtedness under the 2019 Term Loan, as amended.

The outstanding principal balance of the term loans bears interest at an annual rate equal to the greater of either (i) the prime rate as reported in The Wall Street Journal plus 5.90% or (ii) 9.15%, subject to an ability by us, during certain periods, each such period a PIK Deferral Period, to request a reduction of the then-effective cash-pay interest rate by up to 1.00% per annum, which we refer to as the Cash Interest Reduction Amount. Accrued interest is payable monthly following the funding of each term loan. During each PIK Deferral Period, the term loans will bear cash-pay interest, at the reduced amount, and will accrue paid-in-kind interest at a rate equal to the Cash Interest Reduction Amount multiplied by 1.15, which amount will be capitalized and added to the outstanding principal balance of the term loans on each monthly interest payment date during the PIK Deferral Period. We are required to repay the term loans in equal installments of principal and interest commencing on May 1, 2023 through October 1, 2025, which is the Maturity Date. However, if either the First Milestone or the Second Milestone are achieved prior to May 1, 2023, and no default exists, the amortization commencement date will be automatically extended to November 1, 2023; if both the First Milestone and the Second Milestone are achieved prior to November 1, 2023, and no default exists, the amortization commencement date will be further automatically extended to May 1, 2024 and if any term loans are funded under the fourth tranche noted above prior to May 1, 2024, and no default exists, the amortization commencement date will be further automatically extended to November 1, 2024. On the Maturity Date, all unpaid term loans will be due and payable.

As collateral for the obligations, we have granted to Hercules a senior security interest in all our right, title, and interest in, to and under all of our property, inclusive of intellectual property, which includes one of our existing license agreements with Antecip, subject to limited exceptions. Antecip consented to the collateral assignment of the License Agreement, among other things, under a Direct Agreement with us and Hercules.

The Loan Agreement contains customary representations, warranties and covenants, including covenants by us limiting additional indebtedness, liens (including a negative pledge on intellectual property and other assets), guaranties, mergers and consolidations, substantial asset sales, investments and loans, certain corporate changes, transactions with affiliates and fundamental changes. At the initial closing, there were no applicable financial covenants contained in the Loan Agreement. Only after additional amounts are drawn down by us in the future, if we decide to do so, under the terms set forth in the Loan Agreement, there will be certain limited financial covenants that will apply, including:

- Effective upon the date the outstanding principal amount of the advances under the Loan Agreement equals or exceeds \$55.0 million, which has not yet occurred, we at all times thereafter must maintain cash in an account or accounts in which Hercules has a first priority security interest, in an aggregate amount greater than or equal to \$15.0 million, plus the amount of our accounts payable under U.S. GAAP not paid after the 180th day following the invoice for such account payable which amount we refer to as the Qualified Cash A/P Amount.
- Effective upon the later of (i) the last calendar month of the calendar quarter that is twelve months following the earlier of (x) the date that the First Milestone is achieved and (y) the date that the Second Milestone is achieved, or (ii) the date on which the outstanding principal amount of the term loan advances under the Loan Agreement is equal to or greater than \$65.0 million, neither of which have occurred yet, we are required to (A) ensure that at all times its market capitalization exceeds \$2.0 billion, and that it maintains cash in an account which Hercules has a first priority security interest in an amount not less than 65% of the sum of the outstanding principal amount of the term loan advances plus the Qualified Cash A/P Amount, (B) ensure that at all times that it maintains cash in an account which Hercules has a first priority security interest in an amount not less than 100% of the sum of the outstanding principal amount of the term loan advances plus the Qualified Cash A/P Amount, or (C) achieve at least 60% of the net product revenue per the board of directors approved forecast solely from the sale of AXS-05 and AXS-07 (which may include royalty, profit sharing, or sales-based milestone revenue recognized in accordance with GAAP, but will not include any upfront or non-sales-based milestone payments under business development or licensing transactions), measured on a trailing six-month basis as of the date of our most recent quarterly financial statement, determined on a quarterly basis.
- Restrictions on our ability to incur additional indebtedness, pay dividends, encumber its intellectual property, or engage in certain fundamental business transactions, such as mergers or acquisitions of other businesses, with certain exceptions.

Our obligations under the Loan Agreement are subject to acceleration upon the occurrence of specified events of default, including payment default, insolvency and a material adverse change in our business, operations or financial or other condition.

In addition, we are required to pay a final payment fee equal to the greater of (A) \$2,910,000 and (B) 4.85% of the aggregate amount of all future term loan advances. The final payment fee is being accreted and amortized into interest expense using the effective interest rate method over the term of the loan.

We may, at our option prepay the term loans in full or in part, subject to a prepayment penalty equal to (i) 2.0% of the principal amount prepaid if the prepayment occurs prior to the first anniversary of the initial closing, (ii) 1.5% of the principal amount prepaid if the prepayment occurs on or after the first anniversary and prior to the second anniversary of the initial closing, and (iii) 1.0% of the principal amount prepaid if the prepayment occurs on or after the second anniversary and prior to the third anniversary of the initial closing.

October 2021 First Amendment to the Loan and Security Agreement – Hercules

On October 14, 2021 ("First Amendment Closing Date"), we entered into the first amendment to the Loan Agreement (the "First Amendment to the Loan Agreement").

Under the First Amendment to the Loan Agreement, the First Amendment amended the terms of that certain Loan and Security Agreement, dated as of September 25, 2020, by and among the Company, Hercules and the Lenders (the "Loan Agreement") to, among other things, (i) increase the aggregate principal amount of the loan, available at the Company's option, from \$225,000,000 to \$300,000,000, (ii) change the draw amounts and dates available in Tranche 2 through Tranche 5 including increasing the amount available under Tranche 2 subject to FDA approval of the Company's AXS-05 product candidate for the treatment of major depressive disorder from \$35,000,000 to \$100,000,000, maintaining the amount available under Tranche 3 subject to FDA approval of the Company's AXS-07 product candidate for the acute treatment of migraine of \$20,000,000, reducing the amount under Tranche 4 available upon achievement of certain combined sales and outstanding debt criteria from \$60,000,000 to \$55,000,000, and increasing the amount available under Tranche 5 to support future strategic initiatives, including further pipeline advancement or expansion from \$50,000,000 to \$75,000,000 subject to the approval from Hercules, (iii) extend the maturity date of the facility from the original October 2025 to October 2026, and optionally to October 2027, subject to certain conditions, (iv) reset and extend the interest only period from the initial 30 months from the original loan closing to 48 months from the First Amendment and extendable up to 60 months subject to FDA approval of the Company's AXS-05 product candidate for the treatment of major depressive disorder and subject to FDA approval of AXS-07 in the acute treatment of migraine, and (v) decrease the interest rate from 9.15% (floating rate based on the greater of (a) 9.15% or (b) US WSJ Prime + 5.90%) to 8.95% (floating rate based on the greater of (a) 8.95% or (b) US WSJ Prime + 5.70%).

In addition, we are required to pay a final payment fee equal to (A) \$2,910,000 plus (B) 4.5% of the aggregate amount of all future term loan advances. The final payment fee is being accreted and amortized into interest expense using the effective interest rate method over the term of the loan.

We may, at our option prepay the term loans in full or in part, subject to a prepayment penalty equal to (i) 2.0% of the principal amount prepaid if the prepayment occurs prior to the first anniversary of the First Amendment Closing Date, (ii) 1.5% of the principal amount prepaid if the prepayment occurs on or after the first anniversary and prior to the second anniversary of the First Amendment Closing Date, and (iii) 1.0% of the principal amount prepaid if the prepayment occurs on or after the second anniversary and prior to the third anniversary of the First Amendment Closing Date. These percentages are unchanged from the Loan Agreement.

March 2022 Second Amendment to the Loan and Security Agreement – Hercules

In March 2022, we entered into a Second Amendment to Loan and Security Agreement with Hercules Capital, Inc. The Second Amendment amends the terms of that certain Loan and Security Agreement, dated as of September 25, 2020, by and among us, Hercules and the Lenders (as amended by that certain First Amendment to Loan and Security Agreement, dated as of October 14, 2021, and as further amended by the Second Amendment). In connection with the Second Amendment, the parties also clarified certain terms of the Warrant Agreement previously issued to Hercules. The Second Amendment shall only be effective upon the closing of the Acquisition.

Employees and Human Capital Management

As of April 26, 2022, we had 116 full-time employees. None of our employees is represented by a collective bargaining agreement and we have never experienced any work stoppage. We believe that we maintain good relations with our employees. Our employees are highly skilled, and many hold advanced degrees. Most of our employees have experience with drug development. Our future performance depends significantly upon the continued service of our key scientific, technical and senior management personnel and our continued ability to attract and retain highly skilled employees. We provide our employees with competitive salaries and bonuses, opportunities for equity ownership, development programs that enable continued learning and growth and a robust employment package that promotes well-being across all aspects of their lives. In addition to salaries, these programs include potential annual discretionary bonuses, stock awards, healthcare and insurance benefits, health savings and flexible spending accounts, paid time off, family leave, and flexible work schedules, among other benefits. We took proactive steps throughout the COVID-19 pandemic to protect the health and safety of our employees. We expect to continue to implement these measures until we determine that the COVID-19 pandemic is adequately contained for purposes of our business. We may take further actions, in compliance with all appropriate government regulations, that we determine to be in the best interest of our employees.

Impact of the CARES Act

On March 27, 2020, the Coronavirus Aid, Relief, and Economic Security Act (the “CARES Act”) was enacted and signed into law, and GAAP requires recognition of the tax effects of new legislation during the reporting period that includes the enactment date. The CARES Act, among other things, includes changes to the tax provisions that benefits business entities and makes certain technical corrections to the 2017 Tax Cuts and Jobs Act, including, permitting net operating losses (“NOLs”), carryovers and carrybacks to offset 100% of taxable income for taxable years beginning before 2021. In addition, the CARES Act allows NOLs incurred in 2018, 2019, and 2020 to be carried back to each of the five preceding taxable years to generate a refund of previously paid income taxes. The CARES Act provides other reliefs and stimulus measures. We have evaluated the impact of the CARES Act, however, at present we do not expect that any provision of the CARES Act would result in a material cash benefit to us or have a material impact on our financial statements or internal controls over financial reporting.

Impact of COVID-19 on our Business

In December 2019, a novel coronavirus known as SARS-CoV-2 was first detected in Wuhan, Hubei Province, People’s Republic of China, causing outbreaks of the coronavirus disease, known as COVID-19, which has spread globally. On January 30, 2020, the World Health Organization (WHO) declared COVID-19 a public health emergency. The Secretary of Health and Human Services declared a public health emergency in the United States on January 31, 2020, under section 319 of the Public Health Service Act (42 U.S.C. 247d), in response to the COVID-19 outbreak. On March 11, 2020, the WHO declared COVID-19 a global pandemic.

Operations and Liquidity

The full impact of the COVID-19 pandemic is still unknown and constantly evolving. While the potential economic impact brought by and over the duration of the COVID-19 pandemic may be difficult to assess or predict, the COVID-19 pandemic has resulted in significant disruption of global financial markets, which could in the future negatively affect our liquidity. In addition, a recession or market volatility resulting from the COVID-19 pandemic could affect our business. We have taken proactive, aggressive action throughout the COVID-19 pandemic to protect the health and safety of our employees and expect to continue to implement these measures until we determine that the COVID-19 pandemic is adequately contained for purposes of our business. We may take further actions as government authorities require or recommend or as we determine to be in the best interests of our employees. To date, the COVID-19 pandemic has not had significant effects on the progression of our clinical trials. Given the nature and type of our short-term investments, we do not believe that the COVID-19 pandemic will have a material impact on our current investment liquidity.

Outlook

Although there is uncertainty related to the continuous impact of the COVID-19 pandemic on our future results, we believe our current cash reserves, coupled with our access to additional capital through the March 2022 Sales Agreement and debt facility, leave us well-positioned to manage our business through this crisis as it continues to unfold. However, the impacts of the COVID-19 pandemic are broad-reaching and continuing and the financial impacts associated with the COVID-19 pandemic are still uncertain.

As a result of the ongoing COVID-19 pandemic and its dynamic nature, including uncertainties relating to the ultimate geographic spread of the virus, the severity of the disease, the duration of the pandemic, and actions that have been or may be taken by governmental authorities to contain the pandemic or to treat its impact, it is difficult to forecast the effects of the COVID-19 pandemic on our results for the fiscal year ending December 31, 2022.

Despite the economic uncertainty resulting from the COVID-19 pandemic, we intend to continue to focus on the development of our product candidates. We continue to monitor the rapidly evolving situation and guidance from international and domestic authorities, including federal, state and local public health authorities and we may take additional actions based on their recommendations. In these circumstances, there may be developments outside of our control requiring us to adjust our operating plan. As such, given the dynamic nature of this situation, we cannot reasonably estimate the impacts of the COVID-19 pandemic on our financial condition, results of operations or cash flows in the future.

Off-Balance Sheet Arrangements

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

Recent Accounting Pronouncements

Refer to Note 2 – Summary of Significant Accounting Policies to our consolidated financial statements included in Part I, Financial Information, Item 1, Financial Statements, of this Quarterly Report on Form 10-Q for a discussion of recently issued accounting pronouncements.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURE ABOUT MARKET RISK

Interest Rate Risk

We are exposed to market risks in the ordinary course of our business and from changes in the interest rate on our debt borrowings. These market risks are principally limited to interest rate fluctuations. We had cash of \$84.7 million and \$86.5 million as of March 31, 2022 and December 31, 2021, respectively. The primary objective of our investment activities is to preserve principal and liquidity while maximizing income without significantly increasing risk. We do not enter into investments for trading or speculative purposes. Due to the short-term nature of our investment portfolio and debt agreement, we do not believe an immediate 100 basis point increase in interest rates would have a material effect on the fair market value of our portfolio, and, accordingly, we do not expect our operating results or cash flows to be materially affected by a sudden change in market interest rates.

Foreign Currency Exchange Risk

We contract with vendors and third-party manufactures located in Europe and certain invoices are denominated in foreign currencies. We are therefore subject to fluctuations in foreign currency rates in connection with these agreements, and recognize foreign exchange gains or losses in our statement of operations. We have not historically hedged our foreign currency exchange rate risk. To date, we have not incurred any material effects from foreign currency changes on these contracts.

We do not believe a 10% change in these currencies on March 31, 2022 would have had a material effect on our results of operations or financial condition.

Inflation Risk

Inflation generally affects us by increasing our cost of labor and pricing of contracts. We do not believe that inflation has had a material effect on our business, financial condition, or results of operations during the three months ended March 31, 2022.

ITEM 4. CONTROLS AND PROCEDURES

Disclosure Controls and Procedures. Our management, with the participation of our principal executive officer and our principal financial officer, evaluated, as of the end of the period covered by this Quarterly Report on Form 10-Q, the effectiveness of our disclosure controls and procedures. Based on that evaluation, our principal executive officer and principal financial officer concluded that our disclosure controls and procedures, as of such date, were effective in ensuring that information required to be disclosed by us in the reports that we file or submit under the Securities Exchange Act of 1934, as amended, or the Exchange Act, is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by us in the reports we file or submit under the Exchange Act is accumulated and communicated to our management, including our principal executive officer and principal financial officer, as appropriate to allow timely decisions regarding required disclosure.

Changes in Internal Control over Financial Reporting. There has been no change in internal controls over financial reporting that occurred during the period covered by this report that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS.

We, and our subsidiaries, are currently not a party to, and our property is not currently the subject of, any material pending legal proceedings; however, we may become involved in various claims and legal actions arising in the ordinary course of business.

ITEM 1A. RISK FACTORS.

Investing in our common stock involves a high degree of risk. You should carefully consider the risk factors set forth below as well as the other information contained in this Quarterly Report on Form 10-Q and in our other public filings in evaluating our business. Any of the following risks could materially and adversely affect our business, financial condition or results of operations. The risks described below are not the only risks facing us. Additional risks and uncertainties not currently known to us or that we currently view to be immaterial may also materially adversely affect our business, financial condition or results of operations. In these circumstances, the market price of our common stock would likely decline.

Risk Factors Summary

Our business is subject to a number of risks and uncertainties, including those risks discussed at length below. These risks include, among others, the following:

- *We have incurred significant losses since our inception, anticipate that we will incur substantial losses for the foreseeable future, and may never achieve or maintain profitability.*
- *We may need additional funding to conduct our future clinical trials and to complete development and commercialization of our product candidates. If we are unable to raise capital when needed, we would be forced to delay, reduce, or eliminate our product development programs or commercialization efforts.*
- *Our operating activities may be restricted as a result of covenants related to the outstanding indebtedness under our loan and security agreement with Hercules and we may be required to repay the outstanding indebtedness in an event of default, which could have a materially adverse effect on our business.*
- *We have a limited operating history and no history of commercializing products, which may make it difficult to evaluate our business and prospects.*
- *We are substantially dependent on the success of our product candidates and cannot guarantee that any of our product candidates will successfully complete any planned or ongoing clinical trials, receive regulatory approval, or be successfully commercialized.*
- *If safety and efficacy data for our product candidates, a reference drug, or published literature does not satisfactorily demonstrate safety and efficacy to the FDA, or if the FDA and other regulators do not permit us to rely on the data of a reference drug or published literature, we may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development and commercialization of our product candidates.*
- *Although Breakthrough Therapy, Fast Track, and other designations are designed to expedite the development and review of drugs, they may not ultimately lead to a faster approval process or faster development of regulatory review and they will not increase the likelihood that our product candidates will receive marketing approval, for example, Breakthrough Therapy designation by the FDA for AXS-05 for the treatment of MDD and for the treatment of AD agitation.*
- *We face significant competition from other pharmaceutical and biotechnology companies, academic institutions, government agencies, and other research organizations. Our operating results will suffer if we fail to compete effectively.*
- *Even if we obtain FDA approval of an NDA for our product candidates, if we are unable to establish effective marketing, sales and distribution capabilities or enter into agreements with third parties to market, sell and distribute our product candidates, if they are approved, we may be unable to generate product revenues.*

- *If any of our current or future product candidates do not achieve broad market acceptance, the revenues that we generate from their sales will be limited.*
- *We rely, and expect to continue to rely, on third parties to conduct, supervise, and monitor our preclinical studies and clinical trials, and those third parties may not perform satisfactorily, including by failing to meet deadlines for the completion of such trials or failing to comply with regulatory requirements.*
- *If the manufacturers upon whom we rely fail to produce our product candidates in the volumes that we require on a timely basis, or to comply with stringent regulations applicable to pharmaceutical drug manufacturers, we may face delays in the development and commercialization of, or be unable to meet demand for, our products and may lose potential revenues.*
- *Our business operations, financial condition, results of operations and cash flows may be adversely affected by the effects of health epidemics, pandemics, or outbreaks of infectious diseases, including the ongoing COVID-19 pandemic.*
- *As an NDA applicant and a potential commercial “virtual manufacturer,” we may rely in many cases on third parties to perform many essential services for any products that we commercialize, including services related to warehousing and inventory control, distribution, government price reporting, customer service, accounts receivable management, cash collection, and adverse event reporting. If these third parties fail to perform as expected or to comply with legal and regulatory requirements, our ability to commercialize any of our current or future product candidates will be significantly impacted and we may be subject to regulatory sanctions.*
- *We are dependent on third parties to decide to utilize our product candidates effectively, including by making them readily available at the point of care throughout their networks of pharmacies.*
- *Recent patent reform legislation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents.*
- *We have licensed and may need to license certain intellectual property from third parties in the future. Such licenses may not be available or may not be available on commercially reasonable terms. Our business may be materially harmed if the licenses are not available or terminated for any reason.*
- *If we fail to comply with federal, state, and foreign healthcare laws, including fraud and abuse and transparency and health and other data protection, information privacy and security laws, we could face substantial penalties and our business, financial condition, results of operations, and prospects could be adversely affected.*
- *If the government or third-party payors fail to provide adequate coverage and payment rates for any of our current or future product candidates, or if health maintenance organization (HMOs) or long-term care facilities choose to use therapies that are less expensive, our revenue and prospects for profitability will be limited.*
- *We will need to significantly increase the size of our organization, and we may experience difficulties in managing growth. If we are unable to implement appropriate controls and procedures to manage our growth, we will not be able to implement our business plan successfully.*
- *If we fail to maintain an effective system of internal controls over financial reporting, we may not be able to accurately report our financial condition, results of operations or cash flows, which may adversely affect investor confidence in us and, as a result, the value of our common stock.*
- *Our principal stockholders and management own a significant percentage of our stock and may be able to exert significant control over matters subject to stockholder approval.*
- *The use of our net operating loss carryforwards and research tax credits may be limited.*

RISKS RELATED TO OUR FINANCIAL CONDITION AND CAPITAL REQUIREMENTS

We have incurred significant losses since our inception, anticipate that we will incur substantial losses for the foreseeable future, and may never achieve or maintain profitability.

We are a biopharmaceutical company with a limited operating history. For the last several years, we have focused our efforts primarily on developing CNS product candidates, AXS-05, AXS-07, AXS-09, AXS-12, and AXS-14, which we refer to herein as our product candidates, with the goal of achieving regulatory approval and commercialization. Since inception, we have incurred significant operating losses. Our net losses were \$39.6 million for the three months ended March 31, 2022 and \$130.4 million for the year ended December 31, 2021. As of March 31, 2022, we had an accumulated deficit of \$448.8 million. To date, we have not received regulatory approvals for any of our product candidates or generated any revenue from the sale of products. We expect to continue to incur substantial expenses and operating losses over the next several years, as we continue to develop our current and future product candidates. In addition, we expect to incur significant sales, marketing, and manufacturing expenses related to the commercialization of our current and future product candidates, if they are approved by the FDA. As a result, we expect to continue to incur significant losses for the foreseeable future. We anticipate that our expenses will increase substantially as we:

- seek regulatory approval for any product candidates that successfully complete late-stage clinical trials;
- hire additional commercial, clinical, medical, quality, regulatory, and scientific personnel;
- add operational, financial, and management information systems and personnel, including personnel to support our product candidate development and planned future commercialization efforts;
- further establish a sales, marketing, and distribution infrastructure;
- expand external manufacturing capabilities and production to commercialize any products for which we may obtain regulatory approval and that we choose not to license to a third-party;
- undertake additional manufacturing activities of our product candidates to satisfy FDA requirements for marketing application submissions;
- conduct our clinical trials with AXS-05 in depression and AD agitation;
- conduct our clinical trials with AXS-12 in narcolepsy;
- continue to evaluate, plan for, and conduct, clinical trials for AXS-05 as an aid to smoking cessation treatment and other CNS disorders;
- continue to evaluate, plan for, and potentially submit an NDA for AXS-14 in fibromyalgia;
- develop, in-license, or acquire additional product candidates;
- conduct late-stage clinical trials for any product candidates that successfully complete early-stage clinical trials;
- conduct additional non-clinical studies with any product candidates;
- conduct clinical studies with any additional product candidates;
- require larger quantities of product; and
- maintain, expand, and protect our intellectual property portfolio.

To become and remain profitable, we must succeed in developing and eventually commercializing products that generate significant revenue. We do not expect to generate significant revenue unless and until we are able to obtain marketing approval for and successfully commercialize one or more of our product candidates, or if we acquire approved commercial products. This will require us to be successful in a range of challenging activities, including completing preclinical testing and clinical trials of our product candidates, discovering additional product candidates, potentially entering into collaboration and license agreements, obtaining regulatory approval for product candidates and manufacturing, marketing, and selling any products for which we may obtain regulatory approval, achieving market acceptance of our products, satisfying any post-marketing requirements, maintaining appropriate distribution, setting prices, and obtaining reimbursement for our products from private insurance or government payors. We are only in the preliminary stages of some of these activities. We may never succeed in these activities and, even if we do, may never achieve profitability.

Because of the numerous risks and uncertainties associated with pharmaceutical product development, we are unable to accurately predict the timing or amount of increased expenses we may incur or when, or if, we will be able to achieve profitability. If we are required by the FDA or comparable foreign regulatory authorities to perform studies in addition to those currently expected, or if there are any delays in completing our clinical trials or the development of any of our product candidates, our expenses could increase.

Even if we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis. Our failure to become and remain profitable would depress the value of our company and could impair our ability to raise capital, expand our business, maintain our research and development efforts, diversify our product offerings, or even continue our operations. A decline in the value of our company could also cause you to lose all or part of your investment.

We may need additional funding to conduct our future clinical trials and to complete development and commercialization of our product candidates. If we are unable to raise capital when needed, we would be forced to delay, reduce, or eliminate our product development programs or commercialization efforts.

Conducting clinical trials, pursuing regulatory approvals, establishing outsourced manufacturing relationships, and successfully manufacturing and commercializing our product candidates is, and will be, a very time-consuming, expensive, and uncertain process that takes years to complete. We may need to raise additional capital to:

- fund our future clinical trials for our current product candidates, especially if we encounter any unforeseen delays or difficulties in our planned development activities;
- fund our operations and continue our efforts to hire additional personnel and build a commercial infrastructure to prepare for the commercialization of our current and future product candidates, if approved by the FDA or other comparable foreign regulatory authorities;
- qualify and outsource the commercial-scale manufacturing of our products under current good manufacturing practices, or cGMP;
- develop additional product candidates; and
- in-license other product candidates.

We believe that our current available cash, along with the remaining committed capital from the \$300 million term loan facility, is sufficient to fund anticipated operations into 2024, based on the current operating plan, which includes the potential launch of AXS-05 in MDD, and the acquisition and commercialization of Sunosi. We have based this estimate on the assumption that AXS-05 will be approved in 2022, which will give us access to additional funds under the 2020 Term Loan. However, if AXS-05 is not approved, or such approval is delayed, we believe our current available cash is sufficient to fund our anticipated operations, based on the current operating plan, for at least 12 months. Our assumptions may prove to be wrong, and we could spend our available financial resources faster than we currently expect. Further, we may not have sufficient financial resources to meet all of our objectives if any product candidate is approved, which could require us to postpone, scale back, or eliminate some, or all, of these objectives, including our potential launch activities relating to our product candidates. Our future funding requirements will depend on many factors, including, but not limited to:

- the rate of progress and costs related to the development of our product candidates;
- the costs associated with conducting additional clinical and non-clinical studies with any of our product candidates;

- the potential for delays in our efforts to seek regulatory approval for our product candidates, and any costs associated with such delays;
- the costs of establishing a commercial organization to sell, market, and distribute our product candidates;
- the rate of progress and costs of our efforts to prepare for the submission of an NDA, for any product candidates that we may in-license or acquire in the future, and the potential that we may need to conduct additional clinical or preclinical trials to support applications for regulatory approval;
- the costs of filing, prosecuting, defending, and enforcing any patent claims and other intellectual property rights associated with our product candidates;
- the cost and timing of manufacturing, or having third parties manufacture, sufficient supplies of our product candidates in preparation for commercialization;
- the effect of competing technological and market developments;
- revenue, if any, received from commercial sales of our product candidates, subject to the receipt of regulatory approval;
- the terms and timing of any collaborative, licensing, co-promotion, or other arrangements that we may establish; and
- the success of the commercialization of any of our current or future product candidates.

Future capital requirements will also depend on the extent to which we acquire or invest in additional businesses, products, and technologies. Until we can generate a sufficient amount of product revenue, if ever, we expect to finance future cash needs through public or private equity offerings, debt financings, royalties, and corporate collaboration and licensing arrangements, as well as through interest income earned on cash and investment balances. We cannot be certain that additional funding will be available on acceptable terms, or at all. If adequate funds are not available, we may be required to delay, reduce the scope of, or eliminate one or more of our development programs or our commercialization efforts.

Our operating activities may be restricted as a result of covenants related to the outstanding indebtedness under our loan and security agreement with Hercules and we may be required to repay the outstanding indebtedness in an event of default, which could have a materially adverse effect on our business.

In September 2020, we entered into a Loan and Security Agreement, or the Loan Agreement, for a term loan of up to \$225.0 million, which we refer to as the 2020 Term Loan, with Hercules Capital, Inc., or Hercules, in its capacity as administrative agent and collateral agent and as a lender, and the other financial institutions that from time to time become parties to the Loan Agreement, collectively referred to as the Lenders, secured by a lien on substantially all of our assets, including intellectual property. In October 2021, we entered into a First Amendment to the Loan Agreement to, among other things, increase the size of the 2020 Term Loan to \$300.0 million. In March 2022, we entered into a Second Amendment to the 2020 Term Loan that will, among other things, change the terms of the Term Loan Advances (as defined in the 2020 Term Loan) upon the consummation of the Acquisition. The Loan and Agreement contains various covenants that limit our ability to engage in specified types of transactions. These covenants limit our ability to, among other things, sell, transfer, lease or dispose of certain assets; incur indebtedness; encumber or permit liens on certain assets; make certain investments; make certain restricted payments, including paying dividends on, or repurchasing or making distributions with respect to, our common stock; and enter into certain transactions with affiliates. Our business may be adversely affected by these restrictions on our ability to operate our business.

The covenants also include, to the extent the principal amount of the advances under the Loan Agreement equals or exceeds \$55.0 million, maintaining cash in an account or accounts in which the Lenders have a first priority security interest, in an aggregate amount greater than or equal to \$15.0 million, plus the amount of our accounts payable under U.S. generally accepted accounting principles not paid after the 180th day following the invoice for such account payable, which we refer to as the Qualified Cash A/P Account. Further, effective upon the later of (i) the last calendar month of the calendar quarter that is twelve months following the earlier of (x) the date of approval of our NDA for our AXS-05 product candidate for the treatment of major depressive disorder reasonably satisfactory to the Lenders, and (y) the date of approval of our NDA for our AXS-07 product candidate for the treatment of migraine, or (ii) the date on which the outstanding principal amount of the term loan advances under the Loan Agreement is equal to or greater than \$65.0 million, we are obligated to (A) ensure that at all times our market capitalization exceeds \$1.0 billion, and that we maintain cash in an account in which the Lenders have a first priority security interest in an amount not less than 50% of the sum of the outstanding principal amount of the term loan advances plus the Qualified Cash A/P Amount, (B) ensure that at all times that we maintain cash in an account in which the Lenders have a first priority security interest in an amount not less than 85% of the sum of the outstanding principal amount of the term loan advances plus the Qualified Cash A/P Amount, or (C) achieve at least 60% of the net product revenue per our board of directors approved forecast solely from the sale of AXS-05 and AXS-07 (which may include royalty, profit sharing, or sales-based milestone revenue recognized in accordance with GAAP, but will not include any upfront or non-sales-based milestone payments under business development or licensing transactions), measured on a trailing six-month basis as of the date of our most recent quarterly financial statement, included in the projections we delivered to Hercules on September 9, 2020, as updated from time to time, determined on a quarterly basis.

A breach of any of the covenants under the Loan Agreement could result in a default under the 2020 Term Loan. Upon the occurrence of an event of default under the 2020 Term Loan, the Lenders could elect to declare all amounts outstanding, if any, to be immediately due and payable and terminate all commitments to extend further credit. If there are any amounts outstanding that we are unable to repay, the Lenders could proceed against the collateral granted to it to secure such indebtedness.

We have a limited operating history and no history of commercializing products, which may make it difficult to evaluate our business and prospects.

We commenced operations in 2012, and our operations to date have been limited to organizing and staffing our company, business planning, raising capital, and developing our product candidates, including undertaking preclinical studies and conducting clinical trials of our product candidates. We have not yet demonstrated an ability to obtain regulatory approval for, or successfully commercialize, a product candidate. In addition, as a relatively nascent business, we may encounter unforeseen expenses, difficulties, complications, delays, and other known and unknown difficulties. If our product candidates are approved by the FDA, we will need to expand our capabilities to support commercial activities. We may not be successful in adding such capabilities. Consequently, any predictions about our future performance may not be as accurate as they could be if we had a history of successfully developing and commercializing pharmaceutical products.

RISKS RELATED TO OUR BUSINESS AND THE DEVELOPMENT OF OUR PRODUCT CANDIDATES

We are substantially dependent on the success of our product candidates and cannot guarantee that any of our product candidates will successfully complete any planned or ongoing clinical trials, receive regulatory approval, or be successfully commercialized.

We currently have no products approved for commercial distribution. We have invested a significant portion of our efforts and financial resources in the development of our product candidates. Our business depends entirely on the successful development and commercialization of our product candidates, which may never occur. Our ability to generate revenues in the near term is substantially dependent on our ability to develop, obtain regulatory approval for, and then successfully commercialize our product candidates. We currently generate no revenues from sales of any products, and we may never be able to develop or commercialize a marketable product. Furthermore, given the nature of our business, the biopharmaceutical industry in general and the uncertainty and costs associated with developing our product candidates within a complicated and costly regulatory regime, our goals, plans and assumptions with respect to our product candidates may evolve or change. For example, we may not continue to emphasize, focus our research and development efforts on or direct resources to certain of our product candidates, and we may shift our focus and resources to our other current or future product candidates. Any such change in our business strategy could harm our business, cause uncertainty or confusion in the marketplace or harm the clinical prospects of our product candidates.

Our product candidates will require additional clinical and non-clinical development, regulatory approval, commercial manufacturing arrangements, establishment of a commercial organization, significant marketing efforts, and further investment before we generate any revenues from product sales. A Phase 3 trial with AXS-05 in AD agitation and a Phase 3 trial with AXS-12 in narcolepsy are ongoing. As a result of one or more risks discussed in this section, we cannot assure you that we will meet projected timelines related to these trials.

We are not permitted to market or promote any of our product candidates before we receive regulatory approval from the FDA or comparable foreign regulatory authorities, and we may never receive such regulatory approval for any of our product candidates. Even if our product candidates are approved, they may be subject to limitations on the indicated uses for which they may be marketed, distribution restrictions, or to other conditions of approval, may contain significant safety warnings, including boxed warnings, contraindications, and precautions, may not be approved with label statements necessary or desirable for successful commercialization, or may contain requirements for costly post-market testing and surveillance, or other requirements, including the submission of a risk evaluation and mitigation strategy, or REMS, to monitor the safety or efficacy of the products. If we do not receive regulatory approval for, and successfully commercialize, our product candidates, we will not be able to generate revenue from these product candidates in the foreseeable future, or at all. Any significant delays in obtaining approval for and commercializing our product candidates will have a material adverse impact on our business and financial condition.

Although we submitted NDAs to the FDA for AXS-05 for the treatment of MDD and for AXS-07 for the acute treatment of migraine, we have not previously submitted an NDA to the FDA, or similar drug approval filings to comparable foreign authorities, for any product candidate, and we cannot be certain that our current or future product candidates will be successful in clinical trials or receive regulatory approval.

Our product candidates are susceptible to the risks of failure inherent at any stage of product development, including the appearance of unexpected adverse events or failure to achieve its primary endpoints in subsequent clinical trials, including our initiated and planned Phase 3 clinical trials. We conducted one interim analysis for the Phase 2/3 trial of AXS-05 in TRD and one interim analysis for the Phase 2/3 trial of AXS-05 for the treatment of AD agitation. We may elect to conduct interim analyses for our other clinical trials. Interim results of a clinical trial do not necessarily predict final results, and interim results may result in early stoppage of our clinical trials for futility or modifications to our clinical trials, including the addition of additional subjects. Further, our product candidates may not receive regulatory approval even if they are successful in clinical trials.

If approved for marketing by applicable regulatory authorities, our ability to generate revenues from our product candidates depend on our ability to:

- create market demand for our product candidates through our own marketing and sales activities, and any other arrangements to promote these product candidates that we may otherwise establish;
- receive regulatory approval for claims that are necessary or desirable for successful marketing;
- hire, train, and deploy a sales force to commercialize our product candidates;
- manufacture (or have manufactured by third parties) our product candidates in sufficient quantities and at acceptable quality and manufacturing cost to meet commercial demand at launch and thereafter;
- establish and maintain agreements with wholesalers, distributors, and group purchasing organizations on commercially reasonable terms;
- create partnerships with, or offer licenses to, third parties to promote and sell our product candidates in foreign markets where we receive marketing approval;
- maintain patent and trade secret protection and regulatory exclusivity for our product candidates;
- launch commercial sales of our product candidates, whether alone or in collaboration with others;
- achieve market acceptance of our product candidates by patients, the medical community, and government and private third-party payors;
- achieve appropriate reimbursement for our product candidates;
- effectively compete with other therapies; and
- maintain a continued acceptable safety profile of our product candidates following launch.

Potential conflicts of interest exist with respect to the intellectual property rights that we license from an entity owned by our Chief Executive Officer and Chairman of the Board, and it is possible that our interests and their interests may diverge.

In 2012, we entered into three exclusive license agreements with Antecip Bioventures II LLC, or Antecip, an entity owned by our Chief Executive Officer and Chairman of the Board, Herriot Tabuteau, M.D., in which we were granted exclusive licenses to develop, manufacture, and commercialize Antecip's patents and applications related to the development of our current product candidates. Although Dr. Tabuteau dedicates all of his working time to us because Antecip is an inactive intellectual property holding company, he may face potential conflicts of interest regarding these licensing transactions as a result of his ownership of Antecip. The license agreements provide that, subject to the reasonable consent of Antecip, we have the right to control the prosecution or defense, as the case may require, of a patent infringement claim involving the licensed intellectual property. Our interests with respect to pleadings and settlements in such cases may be at odds with those of Antecip. If there is a dispute between us and Antecip, Dr. Tabuteau will have a conflict of interest because he may, at the time of a prospective dispute, simultaneously have a financial interest in and owe a fiduciary duty to Antecip and simultaneously have a financial interest in and owe a fiduciary duty to us. For example, if a contractual dispute arises between us and Antecip under any of the license agreements we have with Antecip, Dr. Tabuteau may be in a position where he would benefit if Antecip prevails, to the detriment of our business or our investors, even though he is an officer and director of our company, because he is the sole owner of Antecip. Similarly, if we have a claim of any kind against Antecip, Dr. Tabuteau may be, even as our Chief Executive Officer and Chairman of the Board, reluctant to assert a claim by us against Antecip because of his financial interest in Antecip. We cannot assure you that any conflicts will be resolved in our favor, and as a result, our business could be impeded or materially harmed.

We may expend our limited resources to pursue a particular product candidate or indication and fail to capitalize on product candidates or indications that may be more profitable or for which there is a greater likelihood of success.

Because we have limited financial and managerial resources, we focus on developing product candidates for specific indications that we identify as most likely to succeed, in terms of both its regulatory approval and commercialization. As such, we are currently primarily focused on the development of AXS-05 for the treatment of depression, agitation associated with AD, and smoking cessation, AXS-07 for the acute treatment of migraine, AXS-12 for the treatment of narcolepsy and AXS-14 for the treatment of fibromyalgia. As a result, we may forego or delay pursuit of opportunities with other product candidates or for other indications that may prove to have greater commercial potential. Additionally, as more fully described in "Business—Material License Agreements," we are required to pay to an entity owned by our Chief Executive Officer and Chairman of the Board certain royalty payments related to the development of AXS-05, as well as two product candidates that are not currently in active development, but not with respect to the development of other product candidates, which may influence management's decision concerning which product candidates or indications to pursue. Our resource allocation decisions may cause us to fail to capitalize on viable commercial products or profitable market opportunities. Our spending on current and future research and development programs and product candidates for specific indications may not yield any commercially viable products. If we do not accurately evaluate the commercial potential or target market for a particular product candidate, we may relinquish valuable rights to that product candidate through collaboration, licensing, or other royalty arrangements in cases in which it would have been more advantageous for us to retain sole development and commercialization rights to such product candidate.

Our future growth may depend on our ability to identify and develop product candidates and if we do not successfully identify and develop product candidates or integrate them into our operations, we may have limited growth opportunities.

A component of our business strategy is to continue to develop a pipeline of product candidates by developing products that we believe are a strategic fit with our focus on central nervous system, or CNS, therapeutics. However, these business activities may entail numerous operational and financial risks, including:

- difficulty or inability to secure financing to fund business activities for such development;
- disruption of our business and diversion of our management's time and attention;
- higher than expected development costs;
- exposure to unknown liabilities;
- difficulty in managing multiple product development programs; and
- inability to successfully develop new products or clinical failure.

For instance, our prior efforts have resulted in our decision not to further develop certain product candidates that, at one time, appeared to be promising. We have limited resources to identify and execute the developments of products. Moreover, we may devote resources to potential development that are never completed, or we may fail to realize the anticipated benefits of such efforts. If we do not successfully develop and commercialize product candidates, we may not be able to obtain product revenues in future periods.

If safety and efficacy data for our product candidates, a reference drug, or published literature does not satisfactorily demonstrate safety and efficacy to the FDA, or if the FDA and other regulators do not permit us to rely on the data of a reference drug or published literature, we may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development and commercialization of our product candidates.

We are not permitted to commercialize, market, promote, or sell any product candidate in the United States without obtaining marketing approval from the FDA. Comparable foreign regulatory authorities, such as the European Medicines Agency, or EMA, impose similar restrictions.

In the United States, we currently plan to, at least initially, seek approval of most of our product candidates using the 505(b)(2) pathway, with the exception of AXS-12 and AXS-14. The FDA interprets Section 505(b)(2) of the Federal Food, Drug, and Cosmetic Act, or FDCA, for purposes of approving an NDA, to permit the applicant to rely, in part, upon published literature or the FDA's previous findings of safety and efficacy for an approved product. The FDA, though, requires companies to perform additional clinical trials or preclinical studies to support any deviation from the previously approved product and to support reliance on the FDA's prior findings of safety and efficacy or published literature.

Under the 505(b)(2) pathway, the FDA may approve our product candidates for all or some of the label indications for which the referenced product has been approved, as well as for any new indication sought pursuant to the Section 505(b)(2) process. The label, however, may require all or some of the limitations, contraindications, warnings, or precautions included in the reference product's label, including a box warning (commonly referred to as a "black box warning"), or may require additional limitations, contraindications, warnings, or precautions, including class-wide warnings. For instance, antidepressants, including bupropion, include a class-wide black box warning regarding the increased risk of suicidal thoughts and behavior.

Based on the side effects disclosed in FDA product labeling for marketed drugs that contain the same active molecules as our product candidate, AXS-05 may result in dry mouth, nausea, insomnia, dizziness, pharyngitis, abdominal pain, agitation, anxiety, tremor, seizure, increase in blood pressure and heart rate, hepatotoxicity, hypoglycemia, thrombocytopenia or other hypersensitivity reactions, QT prolongation, left ventricular hypertrophy or left ventricular dysfunction, palpitation, sweating, tinnitus, myalgia, anorexia, urinary frequency, rash, seizure, hypertension, activation of mania or hypomania, psychosis and other neuropsychiatric reactions, suicidal ideation, suicide attempt, completed suicide, angle closure glaucoma, allergic or anaphylactoid or anaphylactic reactions, diarrhea, cough, vomiting, asthenia, peripheral edema, urinary tract infection, influenza, increased gamma-glutamyl transferase, flatulence, or other adverse events or potential adverse events reported or discussed in the product labels for bupropion-containing products or dextromethorphan-containing products including Wellbutrin, Wellbutrin SR, Wellbutrin XL, Aplenzin, Forfivo, Zyban, Contrave, and Nuedexta.

Based on the side effects disclosed in FDA product labeling for marketed drugs that contain the same active molecules as our product candidate, AXS-07 may result in fatigue, confusion, dry mouth, diarrhea, nausea, insomnia, anemia, increased appetite, anxiety, sweating, dizziness, palpitations, arrhythmia, tachycardia, abnormal vision, syncope, seizure, tremor, tinnitus, dizziness, somnolence, paresthesia, dysgeusia, dyspepsia, constipation, weight increase or decrease, gastritis, hematuria, flatulence, esophagitis, gastric ulcers, gastroesophageal reflux, gastrointestinal hemorrhages, colitis, rash, pain or tightness in the chest, neck, throat or jaw, upper respiratory tract infections, influenza-like symptoms, or other adverse events or potential adverse events reported or discussed in the product labels for meloxicam-containing or rizatriptan-containing products including Anjeso, Vivlodex, Mobic, and Maxalt.

Based on the side effects disclosed in EMA required product label for marketed drugs that contain the same active molecule as our product candidate, AXS-12 and AXS-14 may result in decreased appetite, insomnia, agitation, anxiety, dizziness, headache, paresthesia, akathisia, dysgeusia, accommodation disorder, mydriasis, glaucoma, vertigo, tachycardia, palpitations, vasodilation, hypotension, hypertension, dry mouth, vomiting, hyperhidrosis, rash, sensation of incomplete bladder emptying, urinary tract infection, dysuria, urinary retention, erectile dysfunction, ejaculatory pain, ejaculatory delay, chills, or other adverse events or potential adverse events reported or discussed in the product labels for reboxetine containing products including Edronax.

In addition, because we plan to file certain product candidates under an NDA submitted pursuant to 505(b)(2), we will rely, at least in part, upon a reference drug and published literature. For example, we intend to rely on third-party studies in the published literature as well as FDA findings of safety and efficacy for approved drug products containing the same active molecules in AXS-05 and AXS-07. If the FDA disagrees with our conclusions regarding the appropriateness of our reliance on a reference drug or published literature, we could be required to conduct additional clinical trials or other studies to support our NDA, which could lead to unanticipated costs and delays or to the termination of our development program. If we are unable to obtain approval for our pharmaceutical formulations through the 505(b)(2) NDA process, we may be required to pursue the more expensive and time consuming 505(b)(1) approval process, which consists of full reports of investigations of safety and effectiveness conducted by or for the applicant. In addition, because we have submitted NDAs for AXS-05 and AXS-07 pursuant to the 505(b)(2) process, we have not conducted certain additional clinical trials for these product candidates and, as such, we will have less experience with actual testing of the product candidate.

There may also be circumstances under which the FDA would not allow us to pursue a 505(b)(2) application. For instance, should the FDA approve a pharmaceutically equivalent product to our product candidates before we obtain approval, we would no longer be able to use the 505(b)(2) pathway. In that case, it is the FDA's policy that the appropriate submission would be an Abbreviated New Drug Application, or ANDA, for a generic version of the approved product. We may, however, not be able to immediately submit an ANDA or have an ANDA approval made effective, as we could be blocked by others' periods of patent and regulatory exclusivity protection.

Notwithstanding the approval of a number of products by the FDA under 505(b)(2) over the last few years, pharmaceutical companies and others have objected to the FDA's interpretation of Section 505(b)(2). If the FDA's interpretation of Section 505(b)(2) is successfully challenged, the FDA may change its policies and practices with respect to Section 505(b)(2) regulatory approvals, which could delay or even prevent the FDA from approving any NDA that we submit pursuant to the 505(b)(2) process. Moreover, our inability to pursue a 505(b)(2) application could result in new competitive products reaching the market more quickly than our product candidates, which could hurt our competitive position and our business prospects.

We may never receive approval for any of our product candidates, and even if our product candidates are approved under 505(b)(2), the approval may be subject to limitations on the indicated uses for which the products may be marketed, distribution restrictions, or to other conditions of approval; may contain significant safety warnings, including boxed warnings, contraindications, and precautions; may not be approved with label statements necessary or desirable for successful commercialization; or may contain requirements for costly post-market testing and surveillance or other requirements, including REMS, to monitor the safety or efficacy of the products. Moreover, any future actions or inquiries by the FDA with respect to the reference listed drug may require that we make changes to our labeling, discontinue development, or, possibly, withdraw the product from the market.

An NDA submitted under Section 505(b)(2) subjects us to the risk that we may be subject to a patent infringement lawsuit or regulatory actions that would delay or prevent the review or approval of our product candidate.

Under the Hatch Waxman Act, the holder of patents listed in the Orange Book for NDAs that a 505(b)(2) application references may file a patent infringement lawsuit after receiving notice of the paragraph IV certification. Filing of a patent infringement lawsuit against the filer of the 505(b)(2) applicant within 45 days of the patent or NDA owner's receipt of notice triggers a one time, automatic, 30 month stay of the FDA's ability to make the 505(b)(2) NDA approval effective. In such a case, the FDA may not make the 505(b)(2) NDA approval effective until the earlier of 30 months from the receipt of the notice of the paragraph IV certification, the expiration of the patent, when the infringement case concerning each such patent was favorably decided in the applicant's favor or settled, or such shorter or longer period as may be ordered by a court. Accordingly, we may invest a significant amount of time and expense in the development of one or more product candidates only to be subject to significant delay and patent litigation before such product candidates may be commercialized, if at all. In addition, a 505(b)(2) application approval will not be made effective until any existing non-patent exclusivity, such as exclusivity for obtaining approval of a new chemical entity, or NCE, or exclusivities for changes to NCEs listed in the Orange Book for the referenced product have expired or, if possible, are carved out from the label.

In practice, companies that produce branded reference listed drugs often bring patent litigation against applicants that seek regulatory approval to market generic or reformulated versions of their products. Litigation to enforce or defend intellectual property rights is often complex and often involves significant expense and can delay or prevent introduction or sale of our product candidates. If a court finds patents valid and infringed by our product candidates, we may be required to cease selling, relinquish or destroy existing stock, or pay monetary damages unless we can obtain a license from the patent holder. There may also be situations where we use our business judgment and decide to market and sell our approved products, notwithstanding the fact that allegations of patent infringement have not been finally resolved by the courts, an approach known as an "at risk launch." The risk involved in doing so can be substantial because the remedies available to the owner of a patent for infringement may include, among other things, damages measured by the profits lost by the patent owner which may be greater than the profits earned by the infringer. In the case of willful infringement, such damages may be increased up to three times. An adverse

decision in patent litigation could have a material adverse effect on our business, financial position, and results of operations and could cause the market value of our common stock to decline. Should we need to file a paragraph IV certification in the future for our product candidates, we may risk patent litigation and substantial delays.

The regulatory approval processes of the FDA and comparable foreign authorities are lengthy, time consuming, and inherently unpredictable. If we are not able to obtain, or if there are delays in obtaining, required regulatory approvals, we will not be able to commercialize our product candidates as expected, and our ability to generate revenue will be materially impaired.

The time required to obtain approval by the FDA and comparable foreign authorities is unpredictable but typically takes many years following the commencement of clinical trials and depends upon numerous factors, including the substantial discretion of the regulatory authorities and the availability and prioritization of regulatory agency resources. In addition, approval policies, regulations, or the type and amount of clinical data necessary to gain approval may change during the course of a product candidate's clinical development and may vary among jurisdictions, and may require us to amend our clinical trial protocols or conduct additional studies that require regulatory or institutional review board, or IRB, approval, or otherwise cause delays in the approval or rejection of an application. Even though we have submitted two NDAs to the FDA we have not obtained regulatory approval for any product candidate and it is possible that none of our existing product candidates, or any product candidates we may seek to develop in the future, will ever obtain regulatory approval. Any delay in obtaining or failure to obtain required approvals could materially adversely affect our ability or that of any of our collaborators to generate revenue from the particular product candidate, which likely would result in significant harm to our financial position and adversely impact our stock price.

Our product candidates and the activities associated with their development and commercialization, including their design, testing, manufacture, safety, efficacy, recordkeeping, labeling, storage, approval, advertising, promotion, sale, and distribution, are subject to comprehensive regulation by the FDA and other regulatory agencies in the United States, and by the EMA and similar regulatory authorities outside the United States and Europe. Failure to obtain marketing approval for a product candidate will prevent us from commercializing the product candidate. We have no experience in filing and supporting the applications necessary to gain marketing approvals and expect to rely on third-party contract research organizations, or CROs, and consultants to assist us in this process. Securing marketing approval requires the submission of extensive preclinical and clinical data and supporting information to regulatory authorities for each therapeutic indication to establish the product candidate's safety and efficacy for that indication and the submission of information about the product manufacturing process to, and inspection of manufacturing facilities and clinical trial sites by, the regulatory authorities.

Clinical testing is expensive and can take many years to complete, and its outcome is inherently uncertain. Failure can occur at any time during the clinical trial process. The results of preclinical studies; our product candidates' mechanism of action; studies conducted by third parties in different patient populations, using different products, or using different study designs; and early clinical trials of our product candidates may not be predictive of the results of later-stage clinical trials. Product candidates in later stages of clinical trials may fail to show the desired safety and efficacy traits despite having progressed through preclinical studies and initial clinical trials. Preclinical studies may also reveal unfavorable product candidate characteristics, including safety concerns. A number of companies in the pharmaceutical industry have suffered significant setbacks in advanced clinical trials due to lack of efficacy or adverse safety profiles, notwithstanding promising results in earlier trials. Our future clinical trial results may not be successful. Moreover, should there be a flaw in a clinical trial, it may not become apparent until the clinical trial is well advanced.

We may also experience numerous unforeseen events during, or as a result of, clinical trials and in the course of our preparation, submission, and review of NDA filings that could delay or prevent our ability to receive marketing approval or commercialize our product candidates, including:

- regulators or IRBs may not authorize us or our investigators to commence a clinical trial or conduct a clinical trial at a prospective trial site or amend trial protocols;
- we may experience delays in reaching, or fail to reach, agreement on acceptable clinical trial contracts or clinical trial protocols with prospective trial sites and our CROs;
- clinical trials of our product candidates may produce negative or inconclusive results, or our studies may fail to reach the necessary level of statistical or clinical significance, and we may decide, or regulators may require us, to conduct additional clinical trials or abandon product development programs;

- interim analyses may result in our clinical trials being discontinued for safety or futility reasons or may result in modifications to our clinical trials that prolong the trials or make them difficult and more expensive to complete, such as increases in the number of subjects;
- the number of patients required for clinical trials of our product candidates may be larger than we anticipate, enrollment in these clinical trials may be slower than we anticipate, or participants may drop out of these clinical trials at a higher rate than we anticipate;
- our third-party contractors may fail to comply with regulatory requirements or the clinical trial protocol, or meet their contractual obligations to us in a timely manner, or at all, or we may be required to engage in additional clinical trial site monitoring;
- we, the regulators, or IRBs may require that we or our investigators suspend or terminate clinical research for various reasons, including noncompliance with regulatory requirements or a finding that the participants are being exposed to unacceptable health risks, undesirable side effects, or other unexpected characteristics of the product candidate, or due to findings of undesirable effects caused by a chemically or mechanistically similar drug or drug candidate. We may also discontinue clinical research and programs due to changing business priorities;
- changes in marketing approval policies during the development period rendering our data insufficient to obtain marketing approval;
- changes in or the enactment of additional statutes or regulations;
- changes in regulatory review for each submitted product application;
- the cost of clinical trials of our product candidates may be greater than we anticipate or we may have insufficient funds for a clinical trial or to pay the substantial user fees required by the FDA upon the filing of an NDA;
- the supply or quality of our product candidates or other materials necessary to conduct clinical trials of our product candidates may be insufficient or inadequate;
- we may decide, or regulators may require us, to conduct additional clinical trials, analyses, reports, data, or preclinical/nonclinical studies than we currently plan, or we may abandon product development programs. For instance, although we believe that we are able to rely on the completed Phase 2 ASCEND trial and Phase 3 GEMINI trial in MDD to support an NDA for AXS-05 for the treatment of MDD; the Phase 3 ADVANCE trial and the ongoing ACCORD trial to support an NDA for AXS-05 for the treatment of AD agitation; the Phase 2 CONCERT trial and ongoing SYMPHONY trial to support an NDA for AXS-12 for the treatment of cataplexy and narcolepsy; and the completed Phase 2 trial and Phase 3 trial to support an NDA for AXS-14 for the management of fibromyalgia, the FDA could still require additional studies to support the approval of an NDA for these product candidates. The outcome of our studies may further necessitate additional clinical or preclinical work;
- we may fail to reach an agreement with regulators regarding the scope or design of our clinical trials;
- we may have delays in adding new investigators or clinical trial sites, or we may experience a withdrawal of clinical trial sites;
- we may experience delays in our clinical trials due to the ongoing COVID-19 pandemic;
- patients that enroll in our studies may misrepresent their eligibility or may otherwise not comply with the clinical trial protocol, resulting in the need to drop the patients from the study or clinical trial, increase the needed enrollment size for the study or clinical trial, or extend the study's or clinical trial's duration;
- there may be regulatory questions regarding interpretations of data and results, or new information may emerge regarding our product candidates;
- the FDA or comparable foreign regulatory authorities may disagree with our study design or our interpretation of data from preclinical studies and clinical trials or find that a product candidate's benefits do not outweigh its safety risks. For instance, in our communications with the FDA, the FDA has raised questions and had comments regarding our preclinical studies and clinical trials, such as comments on the acceptability of the proposed trial designs for our product candidates, the number of patients planned for our studies, our data analysis plans, the species and doses used in our preclinical studies, and the results of our preclinical studies;

- the FDA or comparable foreign regulatory authorities may disagree with our belief that certain product attributes are advantageous or may require further study of product attributes that are different than our reference listed drugs. Pharmacokinetic differences between our product candidates and the reference listed drugs, may also make bridging studies more difficult or may prevent us from using the 505(b)(2) pathway. If we are prevented from using the 505(b)(2) pathway, we will need to use the more time consuming and expensive NDA pathway to receive product approval;
- the FDA or comparable foreign regulatory authorities may not accept data from studies with clinical trial sites in foreign countries;
- the FDA or comparable foreign regulatory authorities may disagree with our intended indications;
- the FDA or comparable foreign regulatory authorities may fail to approve or subsequently find fault with the manufacturing processes or our manufacturing facilities for clinical and future commercial supplies;
- in connection with the chemistry, manufacturing, and controls (CMC) data necessary for our NDA filing and approval, we will need to conduct stability studies and provide stability data to establish appropriate retest or expiration dating period;
- applicable to all future drug substance and drug product batches manufactured, packaged, and stored under similar circumstances, to establish the long-term storage conditions, and to provide evidence of the effect of various environmental conditions on the quality of the drug substance and drug product. Our product candidates may not demonstrate sufficient long-term stability to support an NDA filing or obtain approval, or the product shelf life may be limited by stability results;
- there may be delays in the FDA's ability to conduct necessary Pre-Approval Inspections, or PAIs, due to the COVID-19 pandemic or for other reasons, and more generally the FDA or comparable foreign regulatory authorities may take longer than we anticipate to make a decision on our product candidates; and
- we may not be able to demonstrate that a product candidate provides an advantage over current standards of care or current or future competitive therapies in development.

Moreover, if we are required to conduct additional clinical trials or other testing of our product candidates beyond those that we currently contemplate, if we are unable to successfully complete clinical trials or other testing of our product candidates, if the results of these trials or tests are not positive, or are only modestly positive or if there are safety concerns, we may:

- be delayed in obtaining marketing approval for our product candidates;
- not obtain marketing approval at all;
- obtain approval for indications or patient populations that are not as broad as intended or desired or are not covered by our intellectual property;
- obtain approval with labeling that includes significant use or distribution restrictions, including restrictions on the intended patient population, or safety warnings, including boxed warnings, contraindications, and precautions, or may not include label statements necessary or desirable for successful commercialization;
- be subject to additional post-marketing testing and surveillance requirements, including REMS; or
- have the product removed from the market after obtaining marketing approval.

Our product candidate development costs will also increase if we experience delays in testing or approvals and we may not have sufficient funding to complete the testing and approval process for any of our product candidates. We may be required to obtain additional funds to complete clinical trials and prepare for possible commercialization of our product candidates. We do not know whether any additional preclinical tests or clinical trials will be required, will begin as planned, will need to be restructured, or will be completed on schedule, or at all. Significant delays relating to any preclinical studies or clinical trials also could shorten any periods during which we may have the exclusive right to commercialize our product candidates or allow our competitors, or the competitors of our collaborators, to bring products to market before we do and impair our ability to successfully commercialize our product candidates and may harm our business and results of operations. In addition, many of the factors that cause, or lead to, such delays may ultimately lead to the denial of marketing approval of any of our product candidates. If any of this occurs, our business, financial condition, results of operations, and prospects will be materially harmed.

Regulatory authorities have substantial discretion in the approval process and may refuse to accept any application or may decide that our data are insufficient for approval and require additional preclinical studies, clinical trials, or other studies. In addition, varying interpretations of the data obtained from preclinical and clinical testing could delay, limit, or prevent marketing approval of a product candidate. During the course of review, the FDA may also request or require additional CMC, or other data and information, and the development and provision of these data and information may be time consuming and expensive. Furthermore, there is the possibility that the FDA or comparable foreign regulatory authorities have not previously reviewed product candidates for the indications we are pursuing, such as Alzheimer's disease agitation or smoking cessation. As a result, we may experience delays in regulatory approval due to uncertainties in the approval process.

Finally, even if we were to obtain approval, regulatory authorities may approve any of our product candidates for fewer or more limited indications or uses than we request, may contain significant safety warnings, including black box warnings, contraindications, and precautions, may grant approval contingent on the performance of costly post-marketing clinical trials, surveillance, or other requirements, including REMS to monitor the safety or efficacy of the product, or may approve a product candidate with a label that does not include the labeling claims necessary or desirable for the successful commercialization of that product candidate. Any of these scenarios could compromise the commercial prospects for our product candidates.

If we experience delays in obtaining approval, if we fail to obtain approval of a product candidate or if the label for a product candidate does not include the labeling claims necessary or desirable for the successful commercialization of that product candidate, the commercial prospects for such product candidate may be harmed and our ability to generate revenues from that product candidate will be materially impaired.

If we cannot demonstrate an acceptable safety and toxicity profile for our product candidates, we will not be able to continue our clinical trials of or obtain approval for those product candidates.

In order to obtain approval of a product candidate we must demonstrate safety in various nonclinical tests (including, for example, carcinogenicity studies, drug-drug interaction studies, and toxicity studies), in addition to human clinical trials. At the time of initiating human clinical trials, we may not have conducted or may not conduct all the types of nonclinical testing ultimately required by regulatory authorities, or future nonclinical tests may indicate safety concerns regarding our product candidates. Nonclinical testing and clinical testing are both expensive and time-consuming and have uncertain outcomes. Even if initial tests appear favorable, later testing may have unfavorable results. We may experience numerous unforeseen events during, or as a result of, the testing process, which could delay or prevent our ability to develop or commercialize our product candidates, including:

- our preclinical or nonclinical testing may produce inconclusive or negative safety results, which may require us to conduct additional nonclinical testing or to abandon product candidates;
- our product candidates may have unfavorable pharmacology or toxicity characteristics or suggest possible drug-drug interaction;
- our product candidates may cause undesirable side effects; and
- the FDA or other regulatory authorities may determine that additional safety testing is required.

Any such events would increase our costs and could delay or prevent our ability to commercialize our product candidates, which could adversely impact our business, financial condition and results of operation.

The FDA may determine that any of our current or future product candidates have undesirable side effects that could delay or prevent their regulatory approval or commercialization.

Undesirable side effects caused by our product candidates could cause us, IRBs, and other reviewing entities 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 or other comparable foreign authorities. For example, if concerns are raised regarding the safety of a new drug as a result of undesirable side effects identified during clinical or preclinical testing, the FDA may order us to cease further development, decline to approve the drug, or issue a letter requesting additional data or information prior to making a final decision regarding whether or not to approve the drug.

The number of requests for additional data or information issued by the FDA in recent years has increased and resulted in substantial delays in the approval of several new drugs. Undesirable side effects caused by any of our current or future product candidates could also result in denial of regulatory approval by the FDA or other comparable foreign authorities for any or all targeted indications or the inclusion of unfavorable information in our product labeling, such as limitations on the indicated uses for which the products may be marketed or distributed, a label with significant safety warnings, including boxed warnings, contraindications, and precautions, a label without statements necessary or desirable for successful commercialization, or may result in requirements for costly post-marketing testing and surveillance, or other requirements, including REMS, to monitor the safety or efficacy of the products, and in turn prevent us from commercializing and generating revenues from the sale of any of our current or future product candidates.

To date, the most commonly reported adverse events (incidence of $\geq 5\%$ of subjects) observed in the completed clinical trials of AXS-05 include dizziness, nausea, headache, dry mouth, and decreased appetite. Some reported adverse events resulted in discontinuations from our trials of AXS-05. The most frequent adverse events (incidence of $\geq 1\%$ of subjects) resulting in discontinuation included dizziness, nausea, and headache. AXS-05 consists of dextromethorphan and bupropion, and this combination may exacerbate any known adverse events for each individual component or may result in new toxicities as compared to those of the individual components.

To date, the most commonly reported adverse events observed in the completed clinical trials of AXS-07 include nausea, dizziness, somnolence, and paresthesia. AXS-07 consists of meloxicam and rizatriptan, and this combination may exacerbate any known adverse events for each individual component or may result in new toxicities as compared to those of the individual components.

To date, the most commonly reported adverse events observed in the completed clinical trial of AXS-12 include anxiety, constipation, and insomnia.

To date, the most commonly reported adverse events observed in the completed clinical trials of AXS-14 include anxiety, constipation, and insomnia.

If any of our other product candidates are associated with serious adverse events or undesirable side effects or have properties that are unexpected, we may need to abandon development or limit development of that product candidate to certain uses or subpopulations in which the undesirable side effects or other characteristics are less prevalent, less severe, or more acceptable from a risk-benefit perspective. The drug-related side effects could affect patient recruitment or the ability of enrolled patients to complete the trial or result in potential product liability claims. Any of these occurrences may significantly harm our business, financial condition, results of operations, and prospects.

If we experience delays or difficulties in the enrollment of patients in clinical trials, our receipt of necessary regulatory approvals could be delayed or prevented.

We may not be able to initiate or continue conducting clinical trials for our product candidates if we are unable to locate and enroll a sufficient number of eligible patients to participate in these trials as required by the FDA or similar regulatory authorities outside the United States. Some of our competitors have ongoing clinical trials for product candidates that treat the same indications as our product candidates, and patients who would otherwise be eligible for our clinical trials may instead enroll in clinical trials of our competitors' product candidates. Patient enrollment is affected by other factors including:

- the size and nature of the patient population;
- the severity of the disease under investigation;
- the eligibility criteria for, and design of, the clinical trial in question, including factors such as frequency of required assessments, length of the study, and ongoing monitoring requirements;

- the perceived risks and benefits of the product candidate under study, including the potential advantages or disadvantages of the product candidate being studied in relation to other available therapies;
- competition in recruiting and enrolling patients in clinical trials;
- the efforts to facilitate timely enrollment in clinical trials;
- the patient referral practices of physicians;
- effectiveness of publicity created by clinical trial sites regarding the trial;
- patients' ability to comply with the specific instructions related to the trial protocol, proper documentation, and use of the drug product;
- inability to obtain or maintain patient informed consents;
- risk that enrolled patients will drop out before completion;
- the ability to identify patients for enrollment and maintain a sufficient level of patient participants in our clinical studies due to the ongoing COVID-19 pandemic;
- the ability to monitor patients adequately during and after treatment; and
- the proximity and availability of clinical trial sites for prospective patients.

Our inability to enroll a sufficient number of patients for our clinical trials would result in significant delays which would cause us to miss our projected timelines and could require us to abandon one or more clinical trials altogether. For instance, because we are seeking regulatory approval for certain indications that may have a narrow or small patient population, it may be difficult to find patients eligible to participate in our clinical studies at a sufficient rate or in a sufficient quantity. We may be required by the FDA to modify the entry criteria for our planned Phase 3 clinical trials and these changes may make it more difficult to enroll patients in our clinical trials. Moreover, patients in our clinical trials, especially patients in our control groups, may be at risk for dropping out of our studies if they are not experiencing relief of their symptoms. A significant number of withdrawn patients would compromise the quality of our data.

Enrollment delays or slower periods of enrollment in our clinical trials may result in increased development costs for our product candidates, or the inability to complete development of our product candidates, which would cause the value of our company to decline, limit our ability to obtain additional financing, and materially impair our ability to generate revenues.

Currently approved products containing bupropion are subject to restrictive marketing and distribution regulations, which if applied to our product candidates could restrict their use and potentially reduce our ability to generate profits.

Currently approved products containing bupropion and meloxicam require medication guides. Medication guides can be required independently or as part of REMS programs. REMS programs, in addition to medication guides, may require special communication plans to healthcare professionals, or elements to assure safe use, such as restricted distribution methods, distribution only to certain medical professionals, training for medical professionals prescribing our product candidates, patient registries, or other risk minimization tools. The FDA may determine that our product candidates will require a REMS program in addition to a medication guide. We cannot predict whether that will be required as part of the FDA's approval of our product candidates. Any limitations on approval or marketing could restrict the commercial promotion, distribution, prescription, or dispensing of our product candidates, if approved. If a REMS program is required, depending on the extent of the REMS requirements, the program might significantly increase our costs to commercialize these product candidates or could place a substantial burden on medical professionals, discouraging their use of our product candidates, if approved. Furthermore, risks of our product candidates that are not adequately addressed through proposed REMS or medication guides for such product candidates may also prevent or delay their approval for commercialization.

Development of combination product candidates may present more or different challenges than development of single agent product candidates.

Certain product candidates of ours including AXS-05 and AXS-07 are combination therapies. A combination therapy is a single drug product that consists of two or more active ingredients, with each component making a contribution to the claimed effect of the drug. The development of combination drugs may be more complex than the development of single agent products and generally requires that sponsors demonstrate the contribution of each component to the claimed effect and the safety and efficacy of the product as a whole. This requirement may make the design and conduct of clinical trials more complex, requiring more clinical trial subjects. We also may not be able to meet the FDA's approval standards required for combination products. The FDA's requirements concerning combination products may change in the future. Moreover, the applicable requirements for approval may differ from country to country.

Changes in product candidate manufacturing or formulation may result in additional costs or delay.

As product candidates are developed through preclinical studies to late stage clinical trials towards approval and commercialization, it is common that various aspects of the development program, such as manufacturing methods and formulation, are altered along the way in an effort to optimize processes and results. For instance, as we begin scale-up efforts for commercial-size manufacturing batches, formulation changes may be necessary to improve tablet robustness. Such changes carry the risk that they will not achieve these intended objectives. Any of these changes could cause our product candidates to perform differently and affect the results of planned clinical trials or other future clinical trials conducted with the altered materials. Such changes may also require additional testing, FDA notification, or FDA approval. This could delay completion of clinical trials; require the conduct of bridging clinical trials or studies, or the repetition of one or more clinical trials; increase clinical trial costs; delay approval of our product candidates; and jeopardize our ability to commence product sales and generate revenue.

Failure to obtain marketing approval in international jurisdictions would prevent our product candidates from being marketed abroad.

In order to market and sell our products in the European Union, or EU, and many other jurisdictions, we or our third-party collaborators must obtain separate marketing approvals and comply with numerous and varying regulatory requirements. The approval procedure varies among countries and can involve additional testing. The time required to obtain approval may differ substantially from that required to obtain FDA approval. The regulatory approval process outside the United States generally includes all of the risks associated with obtaining FDA approval. 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 does not ensure approval by regulatory authorities in other countries or jurisdictions, and approval by one regulatory authority outside the United States does not ensure approval by regulatory authorities in other countries or jurisdictions or by the FDA. However, the failure to obtain approval in one jurisdiction may compromise 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 market.

A Fast Track product designation or other designation to facilitate product candidate development may not lead to faster development or regulatory review or approval process, and it does not increase the likelihood that our product candidates will receive marketing approval.

We have received a Fast Track product designation for AXS-05 for both the treatment of TRD as well as for the treatment of AD agitation, and we may seek Fast Track designation for other of our current or future product candidates. Receipt of a designation to facilitate expedited review for product candidate development is within the discretion of the FDA. Accordingly, even if we believe one of our product candidates meets the criteria for a designation, the FDA may disagree. In any event, the receipt of such a designation for a product candidate may not result in a faster development process, review, or approval compared to drugs considered for approval under conventional FDA procedures and does not assure ultimate marketing approval by the FDA. In addition, the FDA may later decide that the products no longer meet the designation conditions.

Although Breakthrough Therapy, Fast Track, and other designations are designed to expedite the development and review of drugs, they may not ultimately lead to a faster approval process or faster development of regulatory review and they will not increase the likelihood that our product candidates will receive marketing approval, for example, Breakthrough Therapy designation by the FDA for AXS-05 for the treatment of MDD and for the treatment of AD agitation.

We received Breakthrough Therapy designation for AXS-05 for both the treatment of MDD and the treatment of AD agitation. A breakthrough therapy is defined as a product candidate that is intended, alone or in combination with one or more other drugs, to treat a serious or life-threatening disease or condition, and preliminary clinical evidence indicates that the product candidate may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. For product candidates that have been designated as breakthrough therapies, interaction and communication between the FDA and the sponsor of the trial can help to identify the

most efficient path for clinical development while minimizing the number of patients placed in ineffective control regimens. Breakthrough Therapy designation also allows the sponsor to request a Priority Review or file sections of the NDA on an ongoing basis for rolling review where the FDA may consider beginning review portions of a marketing application before the full submission is complete. Product candidates designated as breakthrough therapies by the FDA are also eligible for priority review if supported by clinical data at the time of the submission of the NDA.

Designation as a breakthrough therapy is within the discretion of the FDA. The receipt of a Breakthrough Therapy designation for a product candidate may not ultimately result in a faster development process or review, and it does not in any way assure approval of product candidates by the FDA. In addition, the FDA may later decide to rescind the Breakthrough Therapy designation for one or more of our applicable product candidates if such product candidates no longer meet the conditions for qualification of this program. For example, we were initially granted Breakthrough Therapy designation for AXS-12 for the treatment of cataplexy in patients with narcolepsy in August 2020. In July 2021, the FDA rescinded our Breakthrough Therapy designation due to the FDA approving an additional drug product for the treatment of cataplexy in narcolepsy.

Regulatory approval is limited by the FDA or comparable foreign regulatory authorities to those specific indications and conditions for which clinical safety and efficacy have been demonstrated, and we may be subject to fines, penalties, injunctions, or other enforcement actions if we are determined to be promoting the use of our products for unapproved or “off-label” uses, resulting in damage to our reputation and business.

We, and any of our collaborators, must comply with requirements concerning advertising and promotion for any of our product candidates for which we or they obtain marketing approval. Promotional communications with respect to prescription drugs are subject to a variety of legal and regulatory restrictions and continuing review by the FDA, Department of Justice, Department of Health and Human Services’ Office of Inspector General, state attorneys general, members of Congress, and the public. When the FDA or comparable foreign regulatory authorities issue regulatory approval for a product candidate, the regulatory approval is limited to those specific uses and indications for which a product is approved. If we are not able to obtain FDA approval for any desired uses or indications for our products and product candidates, we may not market or promote our products for those indications and uses, referred to as off-label uses, and our business may be adversely affected. We further must be able to sufficiently substantiate any claims that we make for our products including claims comparing our products to other companies’ products.

While physicians may choose to prescribe drugs for uses that are not described in the product’s labeling and for uses that differ from those tested in clinical studies and approved by the regulatory authorities, we are prohibited from marketing and promoting the products for indications and uses that are not specifically approved by the FDA or comparable foreign regulatory authorities. These off-label uses are common across medical specialties and may constitute an appropriate treatment for some patients in varied circumstances. Regulatory authorities in the United States and in many other major markets do not generally restrict or regulate the behavior of physicians in their choice of treatment within the practice of medicine. Regulatory authorities do, however, restrict communications by pharmaceutical companies concerning off-label use.

If we are found to have impermissibly promoted any of our product candidates, we may become subject to significant liability and government fines. The FDA and other agencies actively enforce the laws and regulations regarding product promotion, particularly those prohibiting the promotion of off-label uses, and a company that is found to have improperly promoted a product may be subject to significant sanctions. The federal government has levied large civil and criminal fines against companies for alleged improper promotion and has enjoined several companies from engaging in off-label promotion. The FDA has also requested that companies enter into consent decrees of permanent injunctions under which specified promotional conduct is changed or curtailed. Thus, we and any of our collaborators will not be able to promote any products we develop for indications or uses for which they are not approved.

In the United States, engaging in the impermissible promotion of our products, following approval, for off-label uses can also subject us to false claims and other litigation under federal and state statutes, including fraud and abuse and consumer protection laws, which can lead to civil and criminal penalties and fines, agreements with governmental authorities that materially restrict the manner in which we promote or distribute drug products and do business through, for example, corporate integrity agreements, suspension or exclusion from participation in federal and state healthcare programs, and debarment from government contracts and refusal of future orders under existing contracts. Recent court decisions have impacted the FDA's enforcement activity regarding off-label promotion in light of First Amendment considerations; however, there are still significant risks in this area in part due to the potential False Claims Act exposure. The False Claims Act allows any individual to bring a lawsuit against a pharmaceutical company on behalf of the federal government alleging submission of false or fraudulent claims, or causing others to present such false or fraudulent claims, for payment by a federal program such as Medicare or Medicaid. If the government decides to intervene and prevails in the qui tam lawsuit, the individual will share in the proceeds from any fines or settlement funds. If the government declines to intervene, the individual may pursue the case alone. Under the False Claims Act, a penalty may be imposed for each false claim, for example, a claim for payment for each prescription for the product, and, when aggregated, these penalties often total millions of dollars and incentivize qui tam lawsuits. These False Claims Act lawsuits against pharmaceutical companies have increased significantly in volume and breadth, leading to several substantial civil and criminal settlements, up to \$3.0 billion, pertaining to certain sales practices and promoting off-label drug uses. This growth in litigation has increased the risk that a pharmaceutical company will have to defend a false claim action; pay settlement fines or restitution, as well as criminal and civil penalties; agree to comply with burdensome reporting and compliance obligations; and be excluded from Medicare, Medicaid, or other federal and state healthcare programs. If we or our collaborators do not lawfully promote our approved products, if any, we may become subject to such litigation and, if we do not successfully defend against such actions, those actions may have a material adverse effect on our business, financial condition, results of operations, and prospects.

In the United States, the distribution of product samples to physicians must further comply with the requirements of the U.S. Prescription Drug Marketing Act. If the FDA determines that our promotional materials or activities violate its regulations and policies pertaining to product promotion, it could request that we modify our promotional materials or activities or subject us to regulatory or other enforcement actions, including issuance of warning letters or untitled letters, suspension or withdrawal of an approved product from the market, requests for recalls, payment of civil fines, disgorgement of money, imposition of operating restrictions, injunctions, or criminal prosecution. These regulatory and enforcement actions could significantly harm our business, financial condition, results of operations, and prospects.

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

Any product candidate for which we obtain marketing approval will be subject to extensive and ongoing requirements of and review by the FDA and other regulatory authorities, including requirements related to the manufacturing processes, post approval clinical data, labeling, packaging, distribution, adverse event reporting, storage, recordkeeping, export, import, advertising, marketing, and promotional activities for such product. These requirements further include submissions of safety and other post-marketing information, including manufacturing deviations and reports; registration and listing requirements; the payment of annual program fees for our product candidates, if approved; continued compliance with cGMP requirements relating to manufacturing, quality control, quality assurance, and corresponding maintenance of records and documents; requirements regarding the distribution of samples to physicians and recordkeeping; and GCP, for any clinical trials that we conduct post approval. Even if marketing approval of a product candidate is granted, the approval may be subject to limitations on the indicated uses and populations for which the product may be marketed or to the conditions of approval, including significant safety warnings, including boxed warnings, contraindications, and precautions that are not desirable for successful commercialization and any requirement to implement a REMS that render the approved product not commercially viable or other post-market requirements or restrictions. Any such restrictions could limit sales of the product.

We and any of our collaborators, including our contract manufacturers, could be subject to periodic unannounced inspections by the FDA to monitor and ensure compliance with cGMP and GCP. Application holders must further notify the FDA, and depending on the nature of the change, obtain FDA pre-approval for product and manufacturing changes. Application fees may apply to certain changes.

In addition, later discovery of previously unknown adverse events or that the drug is less effective than previously thought or other problems with our products, manufacturers, or manufacturing processes, or failure to comply with regulatory requirements both before and after approval, may yield various results, including:

- restrictions on manufacturing or distribution, or marketing of such products;
- restrictions on the labeling, including required additional warnings, such as black box warnings, contraindications, precautions, and restrictions on the approved indication or use;

- modifications to promotional pieces;
- requirements to conduct post-marketing studies or clinical trials; clinical holds or termination of clinical trials;
- requirements to establish or modify a REMS or a comparable foreign authority may require that we establish or modify a similar strategy, that may, for instance, require us to create or modify a medication guide outlining the risks of the previously unidentified side effects for distribution to patients, or restrict distribution of the product, if and when approved, and impose burdensome implementation requirements on us:
- changes to the way the drug is administered;
- liability for harm caused to patients or subjects;
- reputational harm;
- the drug becoming less competitive;
- warning; or untitled letters;
- suspension of marketing or withdrawal of the products from the market;
- regulatory authority issuance of safety alerts, Dear Healthcare Provider letters, press releases, or other communications containing warnings or other safety information about the drug;
- refusal to approve pending applications or supplements to approved applications that we submit;
- recall of products;
- fines, damages, restitution, or disgorgement of profits or revenues;
- suspension or withdrawal of marketing approvals;
- refusal to permit the import or export of our products;
- product seizure or detention;
- FDA debarment, debarment from government contracts, and refusal of future orders under existing contracts, exclusion from federal healthcare programs, consent decrees, or corporate integrity agreements; or
- injunctions or the imposition of civil or criminal penalties, including imprisonment.

Any of these events could prevent us from achieving or maintaining market acceptance of the particular product candidate, if approved, or could substantially increase the costs and expenses of commercializing such product, which in turn could delay or prevent us from generating significant revenues from its sale. Any of these events could further have other material and adverse effects on our operations and business and could adversely impact our stock price and could significantly harm our business, financial condition, results of operations, and prospects.

The FDA's policies may change and additional government regulations may be enacted that could prevent, limit, or delay regulatory approval of our product candidates or that could impose additional regulatory obligations on us if our product candidates are approved. If we are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we are not able to maintain regulatory compliance, we may lose any marketing approval that we may have obtained and be subject to regulatory enforcement action.

Should any of the above actions take place, they could adversely affect our ability to achieve or sustain profitability. Further, the cost of compliance with post-approval regulations may have a negative effect on our operating results and financial condition.

Timelines for the review of our regulatory submissions, including our NDA for AXS-05, by the FDA and other regulatory agencies are subject to change and uncertainty, which may delay the potential approval of any product candidates we seek to develop or commercialize.

We cannot predict the timeline for review of submissions to any regulatory authorities or when any of our product candidates will receive marketing approval, if at all. The timeline for regulatory approval can be affected by a variety of factors, including disruptive effects of the COVID-19 pandemic, budget and funding levels, agency staffing, and statutory, regulatory and policy changes.

For example, although the FDA set a PDUFA target action date of August 22, 2021, for our NDA for AXS-05 for the treatment of MDD, its review of our NDA was not completed on such date and remains ongoing. Although we believe that we have addressed all deficiencies known to us related to the NDA in our responses to the FDA, the FDA's review process for the NDA is not yet complete. Delays or uncertainty in the timing of regulatory action in response to our submissions could adversely impact our development and commercialization efforts and our business prospects.

If we obtain approval to commercialize our product candidates outside of the United States, a variety of risks associated with international operations could materially adversely affect our business.

If any of our product candidates are approved for commercialization, we may enter into agreements with third parties to market them on a worldwide basis or in more limited geographical regions. We expect that we will be subject to additional risks related to entering into international business relationships, including:

- different regulatory requirements for approval of drugs in foreign countries;
- the potential for so-called parallel importing, particularly within Europe, which is what happens when a local seller, faced with high or higher local prices, opts to import goods from a foreign market (with low or lower prices) rather than buying them locally with EU laws supporting such "free movement of goods" within the EU;
- stricter harmonized EU rules on data privacy particularly in relation to health data than is the case in the United States which are being further toughened with the EU General Data Protection Regulation, or the GDPR, which became enforceable beginning May 25, 2018;
- challenges enforcing our contractual and intellectual property rights, especially in those foreign countries that do not respect and protect intellectual property rights to the same extent as the United States;
- unexpected changes in tariffs, trade barriers, and regulatory requirements and in the health care policies of foreign jurisdictions;
- economic weakness, including inflation, or political instability in particular foreign economies and markets;
- compliance with tax, employment, immigration, and labor laws for employees living or traveling abroad;
- foreign taxes, including withholding of payroll taxes;
- foreign currency fluctuations, which could result in increased operating expenses and reduced revenues, and other obligations incident to doing business in another country;
- difficulties staffing and managing foreign operations;
- workforce uncertainty in countries where labor unrest is more common than in the United States and worker rights tend to be stronger;
- costs of compliance with U.S. laws and regulations for foreign operations, including the Foreign Corrupt Practices Act or comparable foreign regulations, and the risks and costs of noncompliance;

- production shortages resulting from any events affecting raw material supply or manufacturing capabilities abroad; and
- business interruptions resulting from geopolitical actions, including war and terrorism, or natural disasters including earthquakes, typhoons, floods, and fires.

These and other risks associated with our international operations may materially adversely affect our ability to attain or maintain profitable operations.

We will need to obtain FDA approval (and that of comparable foreign regulatory authorities) of any proposed product names, and any failure or delay associated with such approval may adversely affect our business.

Any name we intend to use for our product candidates will require approval from the FDA regardless of whether we have secured a formal trademark registration from the U.S. Patent and Trademark Office, or USPTO. The FDA typically conducts a review of proposed product names, including an evaluation of the potential for confusion with other product names. The FDA may also object to a product name if it believes the name inappropriately implies medical claims or contributes to an overstatement of efficacy. If the FDA objects to any of our proposed product names, we may be required to adopt alternative names for our product candidates. If we adopt alternative names, we would lose the benefit of any existing trademark applications for such product candidate and may be required to expend significant additional resources in an effort to identify a suitable product name that would qualify under applicable trademark laws, not infringe the existing rights of third parties, and be acceptable to the FDA. We may be unable to build a successful brand identity for a new trademark in a timely manner or at all, which would limit our ability to commercialize our product candidates.

RISKS RELATED TO THE COMMERCIALIZATION OF OUR PRODUCT CANDIDATES

We face significant competition from other pharmaceutical and biotechnology companies, academic institutions, government agencies, and other research organizations. Our operating results will suffer if we fail to compete effectively.

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

Specifically, there are a large number of companies developing or marketing therapies for CNS disorders, including many major pharmaceutical and biotechnology companies. Among the companies that currently market or are developing therapies that, if approved, our product candidates would potentially compete with include: AbbVie Inc.; Amgen Inc.; Avadel Pharmaceuticals plc; Biogen Inc.; Biohaven Pharmaceutical Holding Company Ltd.; Eli Lilly and Company; H. Lundbeck A/S; Harmony Biosciences; Intra-Cellular Therapies, Inc.; Janssen; Jazz Pharmaceuticals plc; Otsuka Pharmaceutical Co. Ltd.; Relmada Therapeutics Inc.; Sage Therapeutics, Inc.; and Takeda Pharmaceutical Company Limited.

Our commercial opportunities could be reduced or eliminated if our competitors develop and commercialize products that are safer, are more effective, have fewer or less severe side effects, are more convenient, or are less expensive than any products that we may develop. Our competitors also may obtain FDA or other regulatory approval for their products more rapidly than we may obtain approval for ours, which could result in our competitors establishing a strong market position before we are able to enter the market. In addition, our ability to compete may be affected in many cases by insurers or other third-party payors seeking to encourage the use of generic products or therapeutically similar lower cost brands. If our product candidates achieve marketing approval, we expect that they will be priced at a significant premium over competitive generic products, which would further impact our commercialization efforts.

Generic forms of the active ingredients of our product candidates, including zoledronic acid, dextromethorphan, bupropion, meloxicam, rizatriptan, reboxetine, and esomeprazole, are available in the United States and abroad and could be used off-label. Any such off-label use could adversely affect our profitability and have a negative effect on our operating results and financial condition. For example, even though meloxicam is not currently approved for the treatment of acute migraine, we would not be able to prevent a physician from prescribing it for such treatment. Nor could we prevent a payor from offering favorable coverage for such product and disadvantaging our product candidates, even if the generics would be used off-label.

Many of the companies against which we are competing or against which we may compete in the future have significantly greater financial resources and expertise in research and development, manufacturing, preclinical testing, conducting clinical trials, obtaining regulatory approvals, and marketing approved products than we do. Mergers and acquisitions in the pharmaceutical and biotechnology industries may result in even more resources being concentrated among a smaller number of our competitors. Early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with, or acquisition by large and established companies. These third parties compete with us in recruiting and retaining qualified scientific and management personnel and establishing clinical trial sites and patient registration for clinical trials, as well as in acquiring technologies complementary to, or necessary for, our programs.

If the FDA or comparable foreign regulatory authorities approve generic or similar versions of any of our products that receive marketing approval, or such authorities do not grant our products appropriate periods of data exclusivity before approving generic or similar versions of our products, the sales of our products could be adversely affected.

Once an NDA is approved, the covered product becomes a “reference listed drug” in the FDA’s Orange Book. Manufacturers may seek approval of generic versions of reference listed drugs through submission of ANDAs in the United States. In support of an ANDA, a generic manufacturer need not conduct full clinical studies. Rather, the applicant generally must show that its product has the same active ingredient(s), dosage form, strength, route of administration, and conditions of use or labeling, among other commonalities, as the reference listed drug and that the generic version is bioequivalent to the reference listed drug, meaning it is absorbed in the body at the same rate and to the same extent. Recently, the FDA and Congress have also taken steps to encourage increased generic drug competition in the market. Generic products may be significantly less costly to bring to market than the reference listed drug and companies that produce generic products are generally able to offer them at lower prices, and are generally preferred by third-party payors. Thus, following the introduction of a generic drug, a significant percentage of the sales of any branded product or reference listed drug is typically lost to the generic product.

Moreover, in addition to generic competition, we could face competition from other companies seeking approval of drug products that are similar to ours using the 505(b)(2) pathway. Such applicants may be able to rely on our product candidates, if approved, or other approved drug products or published literature to develop drug products that are similar to ours. The introduction of a drug product similar to our product candidates could expose us to increased competition.

Further, if we do not file a patent infringement lawsuit against a generic manufacturer within 45 days of receiving notice of its paragraph IV certification, the ANDA or 505(b)(2) applicant may not be subject to a 30-month stay. Litigation or other proceedings to enforce or defend intellectual property rights are often very complex in nature, may be expensive and time consuming, may divert our management’s attention from our core business, and may result in unfavorable results that could adversely impact our ability to prevent third parties from competing with our products. Accordingly, upon approval of our product candidates we may be subject to generic competition or competition from similar products, or may need to commence patent infringement proceedings, which would divert our resources.

We currently anticipate that we may be eligible for three years of non-patent marketing exclusivity in the United States for our product candidates if they are approved. These three years, however, would only protect our modifications in formulation or approved uses in comparison to the reference listed drug and would not prevent other companies from submitting full NDAs, and would not prevent physicians from prescribing other products off-label or third-party payors from reimbursing for them, since providers are not prohibited from prescribing medications for indications other than the approved indications listed on the label. Moreover, a 505(b)(2) applicant could rely on a reference listed drug that is not one of our product candidates, or published literature, in which case any periods of patent or non-patent protection may not prevent FDA making an approval effective.

Competition that our products may face from generic or similar versions of our products could materially and adversely impact our future revenue, profitability, and cash flows and substantially limit our ability to obtain a return on the investments we have made in those product candidates.

AXS-12 received Orphan Drug Designation from the FDA. However, there is no guarantee that we will receive this designation for any of our other product candidates or receive or maintain any corresponding benefits for any of our other product candidates that may receive Orphan Drug Designation in the future, including periods of exclusivity.

AXS-12 received Orphan Drug Designation from FDA for the treatment of narcolepsy. We may also seek Orphan Drug Designation for our other product candidates, as appropriate.

Orphan Drug Designation, however, may be lost if the indications for which we develop any of our future product candidates do not meet the orphan drug criteria. Moreover, following product approval, orphan drug exclusivity may be lost if the FDA determines, among other reasons, that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantity of the product to meet the needs of patients with the rare disease or condition. Even if we obtain orphan drug exclusivity for any of our current or future product candidates, that exclusivity may not effectively protect the product from competition because different products can be approved for the same condition. Even after an orphan product is approved, the FDA can subsequently approve a product containing the same principal molecular features for the same condition if the FDA concludes that the later product is clinically superior in that it is shown to be safer or more effective or makes a major contribution to patient care.

The FDA or the EMA may grant orphan exclusivity to two different sponsors for the same compound or active molecule and for the same indication. For example, if another sponsor had received FDA approval for a reboxetine-containing product for the treatment of narcolepsy before we had obtained FDA approval for AXS-12 for the treatment of narcolepsy, we would have been prevented from launching our product in the United States for this indication for a period of at least 7 years. If another sponsor had received EMA approval for a reboxetine-containing product for the treatment of narcolepsy before we had obtained EMA approval for AXS-12 for the treatment of narcolepsy, we would have been prevented from launching our product in the EU for this indication for a period of at least 10 to 12 years.

The FDA may undertake a reevaluation of aspects of its orphan drug regulations and policies at any time and may possibly do so in response to a recent court decision regarding the plain meaning of the exclusivity provision of the Orphan Drug Act. We do not know if, when, or how the FDA may change the orphan drug regulations and policies, and it is uncertain how any changes might affect our business. Depending on what changes the FDA may make to its orphan drug regulations and policies, our business, financial condition, results of operations, and prospects could be harmed.

Even if we obtain FDA approval of an NDA for our product candidates, if we are unable to establish effective marketing, sales and distribution capabilities or enter into agreements with third parties to market, sell and distribute our product candidates, if they are approved, we may be unable to generate product revenues.

We are currently building a commercial infrastructure for the marketing, sale, and distribution of pharmaceutical products, which include the creation of a sales force to launch product candidates throughout the United States. This may require additional compliance with a range of federal and state laws. If we commercialize our product candidates outside the United States, we intend to partner with marketing and sales collaborators, rather than with our own sales force.

We have no prior experience in the marketing, sale, and distribution of pharmaceutical products, and there are significant risks involved in the building and managing of a commercial infrastructure. Our role as an NDA holder (if we obtain approval) and a virtual manufacturer along with the establishment and development of our commercial infrastructure, our own sales force, and related compliance plans to market any products we may develop, will be expensive and time consuming and could delay any product launch, and we may not be able to successfully develop these capabilities. We will have to compete with other pharmaceutical and biotechnology companies to recruit, hire, train, manage, and retain marketing and sales personnel. In the event we are unable to develop a marketing and sales infrastructure, we may not be able to commercialize any of our current or future product candidates, which would limit our ability to generate product revenues. Factors that may inhibit our efforts to commercialize any of our current or future product candidates on our own include:

- our inability to recruit, train, manage, and retain adequate numbers of effective sales and marketing personnel;
- the inability of sales personnel to obtain access to physicians or persuade adequate numbers of physicians to prescribe any of our current or future product candidates;
- the inability of sales personnel to travel and/or arrange in-person meetings with physicians due to the ongoing COVID-19 pandemic;
- our inability to effectively oversee a geographically dispersed sales and marketing team;
- the application of federal and state drug distribution and supply chain requirements to our business;
- the costs associated with training sales and marketing personnel on legal and regulatory compliance matters and monitoring their actions;
- an inability to secure adequate coverage and reimbursement by government and private health plans;

- the clinical indications and labeled claims for which the product is approved;
- limitations or warnings, including distribution or use restrictions, contained in the product's approved labeling;
- any distribution and use restrictions imposed by the FDA or to which we agree as part of a mandatory REMS or voluntary risk management plan;
- liability for sales or marketing personnel who fail to comply with the applicable legal and regulatory requirements;
- the lack of complementary products to be offered by sales personnel, which may put us at a competitive disadvantage relative to companies with more extensive product lines; and
- unforeseen costs and expenses associated with creating an independent sales and marketing organization or engaging a contract sales organization.

As we build our commercial infrastructure prior to approval of a product candidate by the FDA, we will incur expenses prior to product launch in recruiting this sales force and developing a compliant marketing and sales infrastructure. If a commercial launch is delayed as a result of FDA requirements or other reasons, we would incur these expenses prior to being able to realize any revenue from sales of our product candidates. Even if we are able to effectively hire a sales force and develop a marketing and sales infrastructure, our sales force and marketing teams may not be successful in commercializing any of our current or future product candidates.

If any of our current or future product candidates do not achieve broad market acceptance, the revenues that we generate from their sales will be limited.

We have never commercialized a product candidate for any indication. Even if any of our current or future product candidates are approved by the appropriate regulatory authorities for marketing and sale, it may not gain acceptance among physicians, patients, third-party payors, and others in the medical community. If any product candidates for which we obtain regulatory approval do not gain an adequate level of market acceptance, we may not generate significant product revenues or become profitable. Market acceptance of any of our current or future product candidates by the medical community, patients, and third-party payors will depend on a number of factors, some of which are beyond our control. For example, physicians are often reluctant to switch their patients from existing therapies even when new and potentially more effective or convenient treatments enter the market. Further, patients often acclimate to the therapy that they are currently taking and do not want to switch unless their physicians recommend switching products or they are required to switch therapies due to lack of reimbursement for existing therapies. Even if physicians prescribe our products, third-party payors may not consider them cost effective without a significant price concession, which could negatively impact our revenue. Third-party payors may also implement onerous access controls, which could further impede our efforts to effectively transition eligible patients to our therapies.

Efforts to educate the medical community and third-party payors on the benefits of our product candidates may require significant resources and may not be successful. If any of our product candidates is approved but does not achieve an adequate level of market acceptance, we may not generate significant revenues and we may not become profitable. The degree of market acceptance of any of our product candidates will depend on a number of factors, including:

- the efficacy of our product candidates;
- the prevalence and severity of adverse events associated with such product candidate;
- the clinical indications for which the product is approved and the approved claims that we may make for the product;
- limitations or warnings contained in the product's FDA-approved labeling, including potential limitations or warnings for such product candidate, that may be more restrictive than other competitive products;
- changes in the standard of care for the targeted indications for such product candidate, which could reduce the marketing impact of any claims that we could make following FDA approval, if obtained;
- the relative convenience and ease of administration of such product candidate;
- cost of treatment versus economic and clinical benefit in relation to alternative treatments or therapies;
- the availability of adequate coverage or reimbursement by third parties, such as insurance companies and other healthcare payors, and by government healthcare programs, including Medicare and Medicaid;

- the willingness of third-party payors to prefer similar but less expensive products even if not approved for our product's indication;
- the extent and strength of our marketing and distribution of such product candidate;
- the safety, efficacy, and other potential advantages over, and availability of, alternative treatments already used or that may later be approved for any of our intended indications;
- distribution and use restrictions imposed by the FDA with respect to such product candidate or to which we agree as part of a mandatory risk evaluation and mitigation strategy or voluntary risk management plan;
- the timing of market introduction of such product candidate, as well as competitive products;
- our ability to offer such product candidate for sale at competitive prices, including prices that are competitive with generic products;
- the willingness of the target patient population to try new therapies and of physicians to prescribe these therapies;
- the extent and strength of our third-party manufacturer and supplier support;
- the approval of other new products for the same indications;
- adverse publicity about the product or favorable publicity about competitive products; and
- potential product liability claims.

Our efforts to educate the medical community and third-party payors on the benefits of our product candidates may require significant resources and may never be successful. Even if the medical community accepts that one of our product candidates is safe and effective for its approved indications, physicians and patients may not immediately be receptive to such product candidate and may be slow to adopt it as an accepted treatment of the approved indication. It is unlikely that any labeling approved by the FDA will contain claims that one of our product candidates is safer or more effective than competitive products or will permit us to promote such product candidate as being superior to competing products. Further, the availability of inexpensive generic forms of pain management products for acute pain may also limit acceptance of certain of our product candidates among physicians, patients, and third-party payors. If any of our current or future product candidates is approved but does not achieve an adequate level of acceptance among physicians, patients, and third-party payors, we may not generate meaningful revenues from our product candidates, and we may not become profitable.

The ability of patients to purchase certain of the active ingredients of our product candidates in generic form could put us at a competitive disadvantage. For example, in some foreign jurisdictions, generic oral forms of dextromethorphan and bupropion are currently available individually for consumer purchase. In addition, physicians may prescribe generic zoledronic acid for the treatment of pain off-label. Any use of these generic forms of the active molecules of our product candidates could adversely affect our business and our results of operations.

The potential market opportunities for our product candidates are difficult to precisely estimate. Our estimates of the potential market opportunities are predicated on many assumptions including industry knowledge and publications, third-party research reports, and other surveys. While we believe that our internal assumptions are reasonable, these assumptions involve the exercise of significant judgment on the part of our management and are inherently uncertain, and the reasonableness of these assumptions has not been assessed by an independent source. If any of the assumptions proves to be inaccurate, the actual markets for our product candidates could be smaller than our estimates of the potential market opportunities.

We face potential product liability exposure, and if successful claims are brought against us, we may incur substantial liability for any of our current or future product candidates and may have to limit their commercialization.

The use of any of our current or future product candidates in clinical trials, and the sale of any of our product candidates for which we obtain regulatory approval, exposes us to the risk of product liability claims. We face inherent risk of product liability related to the testing of our product candidates in human clinical trials and will face an even greater risk if we commercially sell any product candidates that we may develop. For example, we may be sued if any product candidate we develop allegedly causes injury or is found to be otherwise unsuitable during clinical testing, manufacturing, marketing, or sale. Any such product liability claims may include allegations of defects in manufacturing, defects in design, a failure to warn of dangers inherent in the product, negligence, strict liability or a breach of warranties. Claims could also be asserted under state consumer protection acts. Product liability claims might be brought against us by consumers, healthcare providers, or others using, administering, or selling our products. If we cannot successfully defend ourselves against these claims, we will incur substantial liabilities or be required to limit commercialization of our product candidates. Even successful defense would require

significant financial and management resources. Regardless of merit or eventual outcome, liability claims may result in loss of revenue from including from:

- decreased demand for our products and/or product candidates;
- impairment of our business reputation or financial stability;
- costs of related litigation;
- substantial monetary awards to patients or other claimants;
- diversion of management attention;
- loss of revenues;
- withdrawal of clinical trial participants and potential termination of clinical trial sites or entire clinical programs;
- the inability to commercialize our product candidates;
- significant negative media attention;
- decrease in our stock price;
- initiation of investigations and enforcement actions by regulators; and
- product recalls, withdrawals, or labeling, marketing, or promotional restrictions.

We have obtained limited product liability insurance coverage for our products and our clinical trials with a \$8.0 million annual aggregate coverage limit. We have also obtained local policies in those foreign jurisdictions where it was appropriate. However, our insurance coverage may not reimburse us or may not be sufficient to reimburse us for any expenses or losses we may suffer. Moreover, insurance coverage is becoming increasingly expensive, and, in the future, we may not be able to maintain insurance coverage at a reasonable cost or in sufficient amounts to protect us against losses due to liability. We intend to expand our insurance coverage to include the sale of commercial products if we obtain FDA approval for our product candidates in development, but we may be unable to obtain commercially reasonable product liability insurance for any products approved for marketing, or at all. On occasion, large judgments have been awarded in class action lawsuits based on drugs that had unanticipated side effects. A successful product liability claim or series of claims brought against us could cause our stock price to fall and, if judgments exceed our insurance coverage, could decrease our cash and adversely affect our business and our prospects.

RISKS RELATED TO OUR DEPENDENCE ON THIRD PARTIES

We rely, and expect to continue to rely, on third parties to conduct, supervise, and monitor our preclinical studies and clinical trials, and those third parties may not perform satisfactorily, including by failing to meet deadlines for the completion of such trials or failing to comply with regulatory requirements.

We rely on third-party CROs to conduct, supervise, and monitor our preclinical studies and certain clinical trials for our product candidates and do not currently plan to independently conduct preclinical studies or clinical trials of any other potential product candidates. We expect to continue to rely on third parties, such as CROs, clinical data management organizations, medical institutions, and clinical investigators, to conduct our preclinical studies and clinical trials. While we have agreements governing their activities, we have limited influence over their actual performance and control only certain aspects of their activities. The failure of these third parties to successfully carry out their contractual duties or meet expected deadlines could substantially harm our business because we may not obtain marketing approval for or commercialize our product candidates in a timely manner or at all. Moreover, these agreements might terminate for a variety of reasons, including a failure to perform by the third parties. If we need to enter into alternative arrangements, that could delay our product development activities and adversely affect our business.

Our reliance on these third parties for development activities will reduce our control over these activities. Nevertheless, we are responsible for ensuring that each of our studies is conducted in accordance with the applicable protocol, legal, regulatory, and scientific standards and our reliance on the CROs does not relieve us of our regulatory responsibilities. For example, we will remain responsible for ensuring that each of our clinical trials is conducted in accordance with the general investigational plan and protocols for the trial and for ensuring that our preclinical trials are conducted in accordance with good laboratory practice, or GLP, as appropriate. Moreover, the FDA and comparable foreign regulatory authorities require us to comply with standards, such as GCP for conducting, monitoring, recording, and reporting the results of clinical trials to assure that data and reported results are credible and accurate and that the rights, integrity, and confidentiality of trial participants are protected. As a clinical trial sponsor, we also have regulatory requirements that directly apply to us. Regulatory authorities enforce these requirements through periodic inspections of trial sponsors, clinical investigators, and trial sites. If we or any of our CROs fail to comply with applicable GCP, we or our CROs may be subject to enforcement or other legal actions, the clinical data generated in our clinical trials may be deemed unreliable and the FDA or comparable foreign regulatory authorities may require us to perform additional clinical trials.

In addition, when we submit an NDA for review, we are required to report certain financial interests of our third-party investigators if these relationships exceed certain financial thresholds or meet other criteria. The FDA and comparable foreign regulatory authorities may question the integrity of the data from those clinical trials conducted by investigators who previously served or currently serve as scientific advisors or consultants to us from time to time and receive cash compensation in connection with such services or otherwise receive compensation from us that could be deemed to impact study outcome, proprietary interests in a product candidate, certain company equity interests, or significant payments of other sorts.

We cannot assure you that upon inspection by a given regulatory authority, such regulatory authority will determine that any of our clinical trials complies with GCP regulations. In addition, our clinical trials must be conducted with product candidates that were produced under cGMP regulations. Our failure to comply with these regulations may require us to repeat clinical trials, which would delay the regulatory approval process. We also are required to register certain clinical trials and post the results of certain completed clinical trials on a government-sponsored database, ClinicalTrials.gov, within specified timeframes. Failure to do so or to meet the related submission requirements can result in enforcement actions, including civil monetary penalties and adverse publicity.

Our CROs may also have relationships with other entities, some of which may be our competitors, for whom they may also be conducting clinical trials or other drug development activities that could harm our competitive position. In addition, our CROs are not our employees, and except for remedies available to us under our agreements with such CROs, we cannot control whether or not they devote sufficient time and resources to our ongoing clinical, non-clinical, and preclinical programs. If these third parties do not successfully carry out their contractual duties, meet expected deadlines or conduct our preclinical studies or clinical trials in accordance with regulatory requirements or our stated protocols, if they need to be replaced or if the quality or accuracy of the clinical data they obtain is compromised due to the failure to adhere to our clinical protocols or regulatory requirements or for other reasons, our clinical trials may be extended, delayed, or terminated and we may not be able to obtain, or may be delayed in obtaining, marketing approvals for our product candidates and will not be able to, or may be delayed in our efforts to, successfully commercialize our product candidates, or we or they may be subject to regulatory enforcement actions. As a result, our results of operations and the commercial prospects for our product candidates would be harmed, our costs could increase and our ability to generate revenues could be delayed. To the extent we are unable to successfully identify and manage the performance of third-party service providers in the future, our business may be materially and adversely affected.

If any of our relationships with these third-party CROs terminate, we may not be able to enter into arrangements with alternative CROs or to do so on commercially reasonable terms. Switching or adding additional CROs involves additional cost and requires management time and focus. In addition, there is a natural transition period when a new CRO commences work. As a result, delays could occur, which could compromise our ability to meet our desired development timelines. Though we carefully manage our relationships with our CROs, there can be no assurance that we will not encounter similar challenges or delays in the future or that these delays or challenges will not have a material adverse impact on our business, financial condition and prospects, and results of operations.

If the manufacturers upon whom we rely fail to produce our product candidates in the volumes that we require on a timely basis, or to comply with stringent regulations applicable to pharmaceutical drug manufacturers, we may face delays in the development and commercialization of, or be unable to meet demand for, our products and may lose potential revenues.

We do not manufacture any of our product candidates, and we do not currently plan to develop any capacity to do so. We currently outsource all manufacturing of our product candidates to third parties typically without any guarantee that there will be sufficient supplies to fulfill our requirements or that we may obtain such supplies on acceptable terms. Any delays in obtaining adequate supplies with respect to our product candidates may delay the development or commercialization of our product candidates. Moreover, we do not yet in all cases have agreements established regarding commercial supply of our product candidates, and we may not be able to establish or maintain commercial manufacturing arrangements on commercially reasonable terms for any of our current or future product candidates for which we obtain approval in the future.

We may not succeed in our efforts to establish manufacturing relationships or other alternative arrangements for any of our existing or future product candidates and programs. Our product candidates may compete with other products and product candidates for access to manufacturing facilities. There are a limited number of manufacturers that operate under cGMP regulations and that are both capable of manufacturing for us and willing to do so. If our existing third-party manufacturers, or the third parties that we engage in the future to manufacture a product for commercial sale or for our clinical trials, should cease to continue to do so for any reason, we likely would experience delays in obtaining sufficient quantities of our product candidates for us to meet commercial demand or to advance our clinical trials while we identify and qualify replacement suppliers. If for any reason we are unable to obtain adequate supplies of our product candidates or the drug substances used to manufacture them, it will be more difficult for us to develop our product candidates and compete effectively. Further, even if we do establish such collaborations or arrangements, our third-party manufacturers may breach, terminate, or not renew these agreements.

Any problems or delays we experience in preparing for commercial-scale manufacturing of a product candidate may result in a delay in FDA approval of the product candidate or may impair our ability to manufacture commercial quantities or such quantities at an acceptable cost, which could result in the delay, prevention, or impairment of clinical development and commercialization of our product candidates and could adversely affect our business. For example, our manufacturers will need to produce specific batches of our product candidates to demonstrate acceptable stability under various conditions and for commercially viable lengths of time. We and our contract manufacturers will need to demonstrate to the FDA and other regulatory authorities that this is acceptable stability data for our product candidates, as well as validate methods and manufacturing processes, in order to receive regulatory approval to commercialize any of our current or future product candidates. Furthermore, if our commercial manufacturers fail to deliver the required commercial quantities of bulk drug substance or finished product on a timely basis and at commercially reasonable prices, we would likely be unable to meet demand for our products and we would lose potential revenues.

We have a limited number of contract manufacturers for our products. At times we may have only one manufacturer for a product. In addition, we do not have any long-term commitments from our suppliers of clinical trial material or guaranteed prices for our product candidates. The manufacture of pharmaceutical products requires significant expertise and capital investment, including the development of advanced manufacturing techniques and process controls. Manufacturers of pharmaceutical products often encounter difficulties in production, particularly in scaling up initial production. These problems include difficulties with production costs and yields; quality control, including stability of the product candidate and quality assurance testing; shortages of qualified personnel; and compliance with strictly enforced federal, state, and foreign regulations. Our manufacturers may not perform as agreed. If our manufacturers were to encounter any of these difficulties, our ability to provide product candidates to patients in our clinical trials and for commercial use, if approved, would be jeopardized.

In addition, all manufacturers of our product candidates must comply with cGMP requirements enforced by the FDA and comparable foreign regulatory authorities that are applicable to both finished drug products and active pharmaceutical ingredients used both for clinical and commercial supply, through its facilities inspection program. The FDA must verify our contract manufacturers' compliance with cGMP requirements and comparable foreign regulatory authorities will similarly inspect our contract manufacturers' facilities after we submit our marketing applications to the agency and comparable foreign regulatory authorities. The cGMP requirements include quality control, quality assurance, and the maintenance of records and documentation. Manufacturers of our product candidates may be unable to comply with our specifications, these cGMP requirements and with other FDA, state, and foreign regulatory requirements. If our contract manufacturers cannot successfully manufacture material that conforms to our specifications and the strict regulatory requirements of the FDA or other regulatory authorities, they will not be able to secure or maintain regulatory approval for their manufacturing facilities. While we are ultimately responsible for the manufacture of our product candidates, other than through our contractual arrangements, we have little control over our manufacturers' compliance with these regulations and standards. If the FDA or a comparable foreign regulatory authority does not approve these facilities for the manufacture of our product candidates or if it withdraws any such approval in the future, we may need to find alternative manufacturing facilities, which would significantly impact our ability to develop, obtain regulatory approval for, or market our product candidates, if approved. A failure to comply with these requirements may result in regulatory enforcement actions against our manufacturers or us, including fines and civil and criminal penalties, including imprisonment; suspension or restrictions of production; suspension, delay, or denial of product approval or supplements to approved products; clinical holds or termination of clinical studies; warning or untitled letters; regulatory authority communications warning the public about safety issues with the drug; refusal to permit the import or export of the products; product seizure, detention, or recall; suits under the civil False Claims Act; corporate integrity agreements; consent decrees; or withdrawal of product approval. If the safety of any quantities supplied is compromised due to our manufacturers' failure to adhere to applicable laws or for other reasons, we may not be able to obtain regulatory approval for or successfully commercialize our product candidates.

Any failure or refusal to supply our product candidates or components for our current or future product candidates that we may develop could delay, prevent, or impair our clinical development or commercialization efforts. Any change in our manufacturers could be costly because the commercial terms of any new arrangement could be less favorable and because the expenses relating to the transfer of necessary technology and processes could be significant.

Our business operations, financial condition, results of operations and cash flows may be adversely affected by the effects of health epidemics, pandemics, or outbreaks of infectious diseases, including the ongoing COVID-19 pandemic.

Our business could be adversely affected by health epidemics in regions where we have concentrations of clinical trial sites or other business operations and could cause significant disruption in the operations of third-party manufacturers and CROs upon whom we rely.

For example, in December 2019, a novel strain of coronavirus, COVID-19, was identified in Wuhan, China. This virus continues to spread globally and in March 2020, the World Health Organization declared COVID-19 a pandemic. The COVID-19 pandemic has negatively impacted the global economy, disrupted global supply chains and created significant volatility and disruption of financial markets. The evolving COVID-19 pandemic may impact the pace of enrollment in clinical trials, and we may be affected by similar delays as patients may avoid or may not be able to travel to healthcare facilities and physicians' offices unless due to a health emergency and clinical trial staff can no longer get to the clinic. Such facilities and offices have been and may continue to be required to focus limited resources on non-clinical trial matters, including treatment of COVID-19 patients, thereby decreasing availability, in whole or in part, for clinical trial services. In addition, employee disruptions and remote working environments related to the COVID-19 pandemic and the federal, state and local responses to such virus, has impacted and could continue to impact the efficiency and pace with which we work and develop our product candidates and our manufacturing capabilities. In addition, the COVID-19 pandemic has affected and may continue to affect the operations of the FDA and other health authorities, which could result in delays of reviews and approvals.

We utilize contract manufacturers to manufacture our investigational products and plan to utilize contract manufacturers if and when we obtain FDA approval. The FDA announced it would resume domestic facility inspections, after a previous temporary delay, and more recently the agency stated that it is transitioning back to standard operations for conducting domestic facility inspections. The agency continues its general suspension of foreign facility inspections (other than "mission-critical" inspections). Because of the global pandemic, decision-making around facility inspections by the FDA (including Pre-Approval and for cause inspections) continues to evolve. For example, the FDA recently announced an extension to a previous pause on domestic inspections through February 4, 2022, due to the omicron variant of COVID-19, with the goal of restarting inspections as soon as possible. Due to the uncertainty of the COVID-19 pandemic and the FDA's related internal policies, this could impact future applications and approval of product candidates. The FDA has indicated that under certain circumstances it will utilize remote interactive evaluations which include inspection activities "in advance of or in lieu of" on-site drug inspections. Nevertheless, we cannot predict at this time whether this or other developments will cause delays or cause other situations that may adversely impact our business.

The FDA continues to periodically update its guidance, Conduct of Clinical Trials of Medical Products During the COVID-19 Public Health Emergency, which was implemented to assist sponsors in assuring the safety of trial participants, maintaining compliance with GCP, and minimizing risks to trial integrity during the COVID-19 Pandemic, or the COVID-19 Guidelines. The policy is intended to remain in effect only for the duration of the public health emergency related to COVID-19 declared by the Department of Health and Human Services on January 31, 2020. We have implemented several procedures in accordance with the COVID-19 Guidelines to address patient safety and clinical trial conduct during the COVID-19 pandemic, including remote monitoring of patients through telemedical visits, remote monitoring of sites by our clinical trial monitors, remote data entry, and follow-up visits at sites other than the site where the patient was initially treated. Our implementation of the COVID-19 Guidelines and potential disruptions to patient follow up, site monitoring or the timely completion of our trials may have a negative effect on our ability to complete trials and associated regulatory filings.

The ultimate impact of the COVID-19 pandemic is highly uncertain and subject to change. We do not yet know the full extent of potential delays or impacts on our business, financing or clinical trial activities or on healthcare systems or the global economy as a whole. However, these effects may have a material impact on our liquidity, capital resources, operations and business and those of the third parties on which we rely and a recession or market correction resulting from the spread of COVID-19 could materially affect our business and the value of our common stock. We will continue to monitor the COVID-19 situation closely.

As an NDA applicant and a potential commercial “virtual manufacturer,” we may rely in many cases on third parties to perform many essential services for any products that we commercialize, including services related to warehousing and inventory control, distribution, government price reporting, customer service, accounts receivable management, cash collection, and adverse event reporting. If these third parties fail to perform as expected or to comply with legal and regulatory requirements, our ability to commercialize any of our current or future product candidates will be significantly impacted and we may be subject to regulatory sanctions.

We may retain third-party service providers to perform a variety of functions related to the sale and distribution of any of our current or future product candidates, key aspects of which will be out of our direct control. These service providers may provide key services related to warehousing and inventory control, distribution, government price reporting, customer service, accounts receivable management, and cash collection, and, as a result, most of our inventory may be stored at a single warehouse maintained by one such service provider. If we retain a service provider, we would substantially rely on it as well as other third-party providers that perform services for us, including entrusting our inventories of products to their care and handling. If these third-party service providers fail to comply with applicable laws and regulations, fail to meet expected deadlines, or otherwise do not carry out their contractual duties to us, or encounter physical or natural damage at their facilities, our ability to deliver product to meet commercial demand would be significantly impaired and we may be subject to regulatory enforcement action.

In addition, we may engage third parties to perform various other services for us relating to adverse event reporting, safety database management, fulfillment of requests for medical information regarding our product candidates and related services. If the quality or accuracy of the data maintained by these service providers is insufficient, or these third parties otherwise fail to comply with regulatory requirements related to adverse event reporting, we could be subject to regulatory sanctions.

Additionally, if a third-party errs in calculating government pricing information from transactional data in our financial records, it could impact our discount and rebate liability and potentially cause government programs to overpay providers for our products, which could expose us to significant False Claims Act liability and other civil monetary penalties.

Any collaboration arrangements that we are a party to or may enter into in the future may not be successful, which could adversely affect our ability to develop and commercialize our product candidates.

Our business model is to commercialize our product candidates in the United States and generally to seek future collaboration arrangements with pharmaceutical or biotechnology companies, or academic institutions, for the development or commercialization of our product candidates in the rest of the world. For example, in December 2017, we entered into a research collaboration agreement with Duke University for the conduct of a Phase 2 clinical trial of AXS-05 for smoking cessation treatment, which was completed in April 2019. We currently have not entered into any sub-license agreements. Our current and future collaboration arrangements may not be successful, and the success of them will depend heavily on the efforts and activities of our collaborators. Collaborators generally have significant discretion in determining the efforts and resources that they will apply to these collaboration arrangements. For clinical trials of our product candidates being conducted by our collaborators, for example, the Phase 2 clinical trial of AXS-05 for smoking cessation in collaboration with Duke University, we rely on timeline estimates provided by our collaborators for these trials. Such timeline estimates may differ materially from actual trial completion dates. Disagreements between parties to a collaboration arrangement regarding clinical development and commercialization matters can lead to delays in the development process or commercializing the applicable product candidate and, in some cases, termination of the collaboration arrangement. These disagreements can be difficult to resolve if neither of the parties has final decision-making authority.

We may license the right to market and sell our product candidates under our collaborators' labeler codes. Alternatively, we may enter into agreements with collaborators to market and sell our product candidates under our own labeler code, in which case errors and omissions by collaborators in capturing and transmitting transactional data may impact the accuracy of our government price reporting.

Collaborations with pharmaceutical companies and other third parties often are terminated or allowed to expire by the other party. Any such termination or expiration would adversely affect us financially and could harm our business reputation. Any future collaborations we might enter into may pose a number of risks, including:

- collaborators may not perform their obligations as expected;
- collaborators may not pursue development and commercialization of any product candidates which achieve regulatory approval or may elect not to continue or renew development or commercialization programs based on clinical trial results, changes in the collaborators' strategic focus or available funding, or external factors, such as an acquisition, that divert resources or create competing priorities;
- collaborators may delay clinical trials, provide insufficient funding for a clinical trial program, stop a clinical trial or abandon a product candidate, repeat or conduct new clinical trials, or require a new formulation of a product candidate for clinical testing;
- collaborators could fail to make timely regulatory submissions for a product candidate;
- collaborators may not comply with all applicable regulatory requirements or may fail to report safety data in accordance with all applicable regulatory requirements;
- collaborators could independently develop, or develop with third parties, products that compete directly or indirectly with our products or product candidates if the collaborators believe that competitive products are more likely to be successfully developed or can be commercialized under terms that are more economically attractive than ours;
- product candidates discovered in collaboration with us may be viewed by our collaborators as competitive with their own product candidates or products, which may cause collaborators to cease to devote resources to the commercialization of our product candidates;
- a collaborator with marketing and distribution rights to one or more of our product candidates that achieve regulatory approval may not commit sufficient resources to the marketing and distribution of such product candidate or product;
- disagreements with collaborators, including disagreements over proprietary rights, contract interpretation, or the preferred course of development, might cause delays or termination of the research, development, or commercialization of product candidates, lead to additional responsibilities for us with respect to product candidates, or result in litigation or arbitration, any of which would be time consuming and expensive;

- collaborators may not properly maintain or defend our intellectual property rights or may use our proprietary information in such a way as to invite litigation that could jeopardize or invalidate our intellectual property or proprietary information or expose us to potential litigation; and
- collaborators may infringe the intellectual property rights of third parties, which may expose us to litigation and potential liability.

If any collaborations we might enter into in the future do not result in the successful development and commercialization of products or if one of our collaborators subsequently terminates its agreement with us, we may not receive any future research funding or milestone or royalty payments under the collaboration. If we do not receive the funding we expect under the agreements, our development of our product candidates could be delayed and we may need additional resources to develop our product candidates and our product platform.

Additionally, if any future collaborator of ours is involved in a business combination, the collaborator might deemphasize or terminate development or commercialization of any product candidate licensed to it by us. If one of our collaborators terminates its agreement with us, we may find it more difficult to attract new collaborators and our reputation in the business and financial communities could be adversely affected.

We may in the future determine to collaborate with additional pharmaceutical and biotechnology companies and academic institutions for the development and potential commercialization of any of our current or future product candidates. We face significant competition in seeking appropriate collaborators. Our ability to reach a definitive agreement for collaboration will depend upon, among other things, our assessment of the collaborator's resources and expertise, the terms and conditions of the proposed collaboration, and the proposed collaborator's evaluation of a number of factors. If we are unable to reach agreements with suitable collaborators on a timely basis, on acceptable terms, or at all, we may have to curtail the development of a product candidate, reduce or delay its development program or one or more of our other development programs, delay its potential commercialization or reduce the scope of any sales or marketing activities, or increase our expenditures and undertake development or commercialization activities at our own expense. If we elect to fund and undertake development or commercialization activities on our own, we may need to obtain additional expertise and additional capital, which may not be available to us on acceptable terms, or at all. If we fail to enter into collaborations and do not have sufficient funds or expertise to undertake the necessary development and commercialization activities, we may not be able to further develop our product candidates or bring them to market or continue to develop our product platform and our business may be materially and adversely affected.

We are dependent on third parties to decide to utilize our product candidates effectively, including by making them readily available at the point of care throughout their networks of pharmacies.

In addition to extensive internal efforts, the successful commercialization of our product candidates will require many third parties, over whom we have no control, to decide to utilize our product candidates, and to make them readily available at the point of care throughout their networks of pharmacies. These third parties include HMOs, long term care facilities, and pharmacy benefit managers, or PBMs, which use pharmacy and therapeutics committees, commonly referred to as P&T committees, to make purchasing and reimbursement decisions. Generally, before an HMO or long-term care facility will acquire any of our product candidate for its own pharmacies, or a PBM will pay retail network pharmacies on behalf of its health plans, any such product candidates must be approved for addition to that organization's list of approved drugs, or formulary list, by the organization's P&T committee. An institutional P&T committee typically governs all matters pertaining to the use of medications within the institution, including review of medication formulary data and recommendations for the appropriate use of drugs within the institution to the medical staff. PBM P&T committees develop the criteria for plan beneficiaries to access prescription medication, including such cost control measures as step therapy and prior authorization. The frequency of P&T committee meetings varies considerably, and P&T committees often require additional information to aid in their decision-making process, so we may experience substantial delays in obtaining formulary approvals. Additionally, P&T committees may be concerned that the cost of acquiring any of our product candidates for use in their institutions or reimbursing retail pharmacies outweighs clinical benefits and will resist efforts to add any such product candidate to the formulary or implement restrictions on the usage of the drug in order to control costs. Third-party payors often have tiered formularies in which the non-preferred drugs have significantly higher co-pays, causing prescription rejections, and define therapeutic class broadly to increase competition for preferred status. We cannot guarantee that we will be successful in getting the approvals we need from enough P&T committees quickly enough to maintain and grow sales of any of our product candidates.

RISKS RELATED TO INTELLECTUAL PROPERTY

It is difficult and costly to protect our proprietary rights and as a result we may not be able to ensure their protection. In addition, patents have a limited lifespan and will eventually expire.

Market exclusivity awarded by the FDA upon the approval of an NDA is limited in scope and duration. Our commercial success will depend in part on obtaining, maintaining, enforcing, and defending against third-party challenges, patent and trade secret protection for our current and future product candidates that we may develop, license, or acquire, as well as the related manufacturing methods. We will be able to protect our technologies from unauthorized use by third parties to the extent that the technologies are covered by valid and enforceable patents or trade secrets.

The patent prosecution process is expensive and time consuming, and we may not be able to file and prosecute all necessary or desirable patent applications at a reasonable cost or in a timely manner. It is also possible that we will fail to identify patentable aspects of our research and development output before it is too late to obtain patent protection. Moreover, should we enter into additional collaborations we may be required to consult with or cede control to collaborators regarding the prosecution, maintenance, and enforcement of our patent applications and patents. Therefore, these patents and patent applications may not be prosecuted and enforced in a manner consistent with the best interests of our business. The patent positions of pharmaceutical and biotechnology companies can be highly uncertain and involve complex legal and factual questions for which important legal principles remain unresolved. No consistent policy regarding the breadth of claims allowed in pharmaceutical or biotechnology patents has emerged to date in the United States. The patent situation outside the United States is even more uncertain. Changes in either the patent laws or in interpretations of patent laws in the United States and other countries may diminish the value of our intellectual property. Accordingly, we cannot predict the breadth of claims that may be allowed or enforced in our patents and patent applications or in third-party patents and patent applications. The degree of future protection for our proprietary rights is uncertain because legal means afford only limited protection and may not adequately protect our rights or permit us to gain or keep our competitive advantage. Moreover, the patent application process is also subject to numerous risks and uncertainties, and there can be no assurance that we or any of our future development partners will be successful in protecting any of our current or future product candidates that we may develop, license, or acquire by obtaining and defending patents. For example:

- we may not have been the first to conceive of and reduce to practice the inventions covered by each of our pending patent applications and issued patents;
- we may not have been the first to file patent applications for these inventions;
- others may independently develop similar or alternative technologies or duplicate any of our product candidates or technologies;
- it is possible that none of the pending patent applications will result in issued patents;
- the issued patents may not cover commercially viable active products, may not provide us with any competitive advantages, or may be successfully challenged by third parties;
- we may not develop additional proprietary technologies that are patentable;
- patents of others may have an adverse effect on our business;
- noncompliance with requirements of governmental patent agencies can result in abandonment or lapse of a patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction, potentially allowing competitors to enter the market earlier than would otherwise have been the case;
- our competitors, many of whom have substantially greater resources than we do and many of whom have made significant investments in competing technologies, may seek or may have already obtained patents that will limit, interfere with, or eliminate our ability to make, use, and sell our potential product candidates; or
- there may be significant pressure on the U.S. government and international governmental bodies to limit the scope of available patent protection both inside and outside the United States for disease treatments that prove successful, as a matter of public policy regarding worldwide health concerns.

Patents have a limited lifespan. In most countries, including the United States, the expiration of a patent is typically 20 years from the date that the application for the patent is filed. Various extensions of patent term may be available in particular countries; however, in all circumstances the life of a patent, and the protection it affords, has a limited term. If we encounter delays in obtaining regulatory approvals, the period of time during which we could market a product under patent protection could be reduced. We expect to seek extensions of patent terms where these are available in any countries where we are prosecuting patents. Such possible extensions include those permitted under the Drug Price Competition and Patent Term Restoration Act of 1984 in the United States, which permits a patent term extension of up to five years to cover an FDA-approved product. The actual length of the extension will depend on the amount of patent term lost while the product was in clinical trials. However, the applicable authorities, including the U.S. Patent and Trademark Office, or USPTO and the FDA in the United States, and any equivalent regulatory authority in other countries, may not agree with our assessment of whether such extensions are available, and may refuse to grant extensions to our patents, or may grant more limited extensions than we request. If this occurs, our competitors may be able to take advantage of our investment in development and clinical trials by referencing our clinical and preclinical data, and then may be able to launch their product earlier than might otherwise be the case.

Recent patent reform legislation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents.

On September 16, 2011, the Leahy-Smith America Invents Act, or the Leahy-Smith Act, was signed into law. The Leahy-Smith Act includes a number of significant changes to U.S. patent law. These include provisions that affect the way patent applications are prosecuted and may also affect patent litigation. In particular, under the Leahy-Smith Act, the United States transitioned in March 2013 to a "first to file" system in which the first inventor to file a patent application will be entitled to the patent. Third parties are allowed to submit prior art before the issuance of a patent by the USPTO and may become involved in post-grant proceedings including reexamination, post-grant review, inter-partes review, or derivation or interference proceedings challenging our patent rights or the patent rights of others. An adverse determination in any such submission, proceeding, or litigation could reduce the scope or enforceability of, or invalidate, our patent rights, which could adversely affect our competitive position.

The USPTO has developed regulations and procedures to govern administration of the Leahy-Smith Act, and many of the substantive changes to patent law associated with the Leahy-Smith Act, and in particular, the first to file provisions, did not become effective until March 16, 2013. However, the full impact of the Leahy-Smith Act and the courts' review of any appeals to related proceedings is in its early stages. Accordingly, the full impact that the Leahy-Smith Act will have on the operation of our business is not clear. However, the Leahy-Smith Act and its implementation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents, as well as our ability to bring about timely favorable resolution of any disputes involving our patents and the patents of others. Patent applications in the United States are maintained in confidence for at least 18 months after their earliest effective filing date. Consequently, we cannot be certain we were the first to invent or the first to file patent applications of our current or future product candidates that we may develop, license, or acquire. In the event that a third-party has also filed a U.S. patent application relating to our product candidates or a similar invention, we may have to participate in interference proceedings declared by the USPTO to determine priority of invention in the United States. The costs of these proceedings could be substantial and it is possible that our efforts would be unsuccessful, resulting in a material adverse effect on our U.S. patent position. The results of these types of proceedings may reduce the scope of, or invalidate, our patent rights, may allow third parties to commercialize our technology or products and compete directly with us, without payment to us, or may result in our inability to manufacture or commercialize products without infringing third-party patent rights. In addition, if the breadth or strength of protection provided by our patents and patent applications is threatened, it could dissuade companies from collaborating with us to license, develop, or commercialize current or future product candidates. Such results could have a material adverse effect on our business, financial condition, results of operations, and prospects.

In addition, the patentability of claims in pending patent applications covering any of our current or future product candidates can be challenged by third parties during prosecution before the USPTO, for example by third-party observations and derivation proceedings, and the validity of claims in issued patents can be challenged by third parties in various post-grant proceedings such as post-grant review, reexamination, and inter-partes review proceedings. We may incur increased expenses related to the growth of our intellectual property portfolio and to its defense.

Furthermore, we may not have identified all United States and foreign patents or published applications that affect our business either by blocking our ability to commercialize our drugs or by covering similar technologies that affect our drug market. In addition, some countries, including many in Europe, do not grant patent claims directed to methods of treating humans, and in these countries patent protection may not be available at all to protect our product candidates. Even if patents issue, we cannot guarantee that the claims of those patents will be valid and enforceable or provide us with any significant protection against competitive products, or otherwise be commercially valuable to us.

We also rely on trade secrets to protect our technology, particularly where we do not believe patent protection is appropriate or obtainable. However, trade secrets are difficult to protect. While we use reasonable efforts to protect our trade secrets, our licensors, employees, consultants, contractors, outside scientific collaborators, and other advisors may unintentionally or willfully disclose our information to competitors. Enforcing a claim that a third-party illegally obtained and is using our trade secrets is expensive and time consuming, and the outcome is unpredictable. In addition, courts outside the United States are sometimes less willing to protect trade secrets. Moreover, our competitors may independently develop equivalent knowledge, methods, and know-how.

Obtaining and maintaining our patent protection depends on compliance with various procedural, documentary, fee payment, and other requirements imposed by governmental patent agencies, and our patent protection could be reduced or eliminated for noncompliance with these requirements.

The USPTO and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment, and other similar provisions during the patent prosecution process. Periodic maintenance fees, renewal fees, annuity fees, and various other governmental fees on patents or patent applications will be due to be paid to the USPTO and various patent agencies outside of the United States in several stages over the lifetime of the patents and applications. We have systems in place to remind us to pay these fees, and we employ and rely on reputable law firms and other professionals to effect payment of these fees to the USPTO and non-U.S. patent agencies for the patents and patent applications we own and those that we in-license. We also employ reputable law firms and other professionals to help us comply with the various documentary and other procedural requirements with respect to the patents and patent applications that we own and those that we in-license. In some cases, an inadvertent lapse can be cured by payment of a late fee or by other means in accordance with the applicable rules. However, there are situations in which noncompliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. In such an event, our competitors might be able to enter the market and this circumstance would have a material adverse effect on our business.

If we or any future collaboration partner are sued for infringing intellectual property rights of third parties, it will be costly and time consuming, and an unfavorable outcome in any litigation would harm our business.

Our ability to develop, manufacture, market, and sell any of our current and future product candidates depends upon our ability to avoid infringing the proprietary rights of third parties, and our commercial success depends upon our ability, and the ability of our collaborators, to develop, manufacture, market, and sell our product candidates and use our proprietary technologies without infringing the proprietary rights of third parties. There is considerable intellectual property litigation in the biotechnology and pharmaceutical industries. Numerous U.S. and foreign issued patents and pending patent applications owned by third parties, exist in the general field of treatment and management of pain and other CNS disorders and cover the use of numerous compounds and formulations in our targeted markets. Third parties may assert infringement claims against us based on existing patents or patents that may be granted in the future. Because of the uncertainty inherent in any patent or other litigation involving proprietary rights, we and our licensors may not be successful in defending intellectual property claims by third parties, which could have a material adverse effect on our business, financial condition, results of operations, and prospects. Regardless of the outcome of any litigation, defending against litigation may be expensive, time consuming, and distracting to management. In addition, because patent applications can take many years to issue, there may be currently pending applications, unknown to us, which may later result in issued patents that any of our current or future product candidates may infringe. There could also be existing patents of which we are not aware that any of our current or future product candidates may inadvertently infringe.

If a third-party claims that we infringe their intellectual property rights, we could face a number of issues, including:

- infringement and other intellectual property claims which, whether meritorious or not, can be expensive and time consuming to litigate and can divert management's attention from our core business;
- substantial damages for past infringement which we may have to pay if a court decides that our product infringes on a competitor's patent;
- a court prohibiting us from selling or licensing our product unless the patent holder licenses the patent to us, which it would not be required to do;
- if a license is available from a patent holder, we may have to pay substantial royalties or grant cross licenses to our patents; and
- redesigning our product candidates and processes so they do not infringe, which may not be possible or could require substantial funds and time.

If we are found to infringe a third-party's intellectual property rights, we could be required to obtain a license from such third-party to continue developing and marketing our products and technology. However, we may not be able to obtain any required license on commercially reasonable terms, or at all. Even if we were able to obtain a license, it could be non-exclusive, thereby giving our competitors access to the same technologies licensed to us. We could be forced, including by court order, to cease commercializing the infringing technology or product. In addition, we could be found liable for monetary damages, including treble damages and attorneys' fees if we are found to have willfully infringed a patent. A finding of infringement could prevent us from commercializing our product candidates or force us to cease some of our business operations, which could materially harm our business. Claims that we have misappropriated the confidential information or trade secrets of third parties could have a similar negative impact on our business, financial condition, results of operations, and prospects.

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

Competitors may infringe our issued patents, our in-licensed patents, or other intellectual property that we own or in-license. Under the terms of our license agreements with Antecip, if we believe a third-party is infringing on the patents subject to the licenses, we are obligated, at our own expense, to initiate suit against those third parties. To counter infringement or unauthorized use, we may be required to file infringement claims, which can be expensive and time consuming. Any claims we assert against perceived infringers could provoke these parties to assert counterclaims against us alleging that we infringe their patents. In addition, in a patent infringement proceeding, a court may decide that a patent of ours is invalid or unenforceable, in whole or in part; construe the patent's claims narrowly; or refuse to stop the other party from using the technology at issue on the grounds that our patents do not cover the technology in question. An adverse result in any litigation proceeding could put one or more of our patents at risk of being invalidated or interpreted narrowly. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation.

Most of our competitors are larger than we are and have substantially greater resources than we do. They are, therefore, likely to be able to sustain the costs of complex patent litigation longer than we could. In addition, the uncertainties associated with litigation could have a material adverse effect on our ability to raise the funds necessary to continue our clinical trials, continue our internal research programs, in-license needed technology, or enter into development partnerships that would help us bring our product candidates to market.

We have licensed and may need to license certain intellectual property from third parties in the future. Such licenses may not be available or may not be available on commercially reasonable terms. Our business may be materially harmed if the licenses are not available or terminated for any reason.

We are a party to certain license agreements under which we are granted rights to intellectual property, including patent rights that are important to our business. We expect that we may need to enter into additional license agreements in the future to commercialize our products, in which case we would be required to obtain a license from additional third parties. Such licenses may not be available on commercially reasonable terms, or at all, which could materially harm our business, financial condition, results of operations, and prospects. We rely on these licenses to use intellectual property that may be material to our business and important or necessary to the development or commercialization of our products. Our existing license agreements impose, and we expect that future license agreements will impose on us, various exclusivity obligations. If we fail to comply with our obligations under these agreements, the applicable licensor may have the right to terminate our license, in which case we may not be able to develop or commercialize the products covered by such license.

In January 2020, we entered into an agreement with Pfizer Inc., or Pfizer, for an exclusive U.S. license to Pfizer's clinical and nonclinical data, and intellectual property for reboxetine, the active pharmaceutical ingredient in AXS-12 which Axsome is developing for the treatment of narcolepsy. The agreement also provides Axsome exclusive rights to develop and commercialize esreboxetine, a new late-stage product candidate now referred to as AXS-14, in the U.S. for the treatment of fibromyalgia. Under the terms of the agreement, we received from Pfizer an exclusive U.S. license to Pfizer data for reboxetine and esreboxetine encompassing a full range of nonclinical studies, and short-term and long-term clinical trials involving more than five thousand patients. The licensed data includes results of a positive Phase 3 trial and a positive Phase 2 trial of esreboxetine in the treatment of fibromyalgia. We will have the exclusive right and sole responsibility of developing AXS-14 (esreboxetine) in the U.S. for the treatment of fibromyalgia and for other indications. Pfizer received 82,019 shares of our common stock having a value of \$8.0 million, based on the average closing price of our common stock for the 10 prior trading days of \$97.538, in consideration for the license and rights. Pfizer also received an upfront cash payment of \$3.0 million and will receive up to \$323 million in regulatory and sales milestones, and tiered mid-single to low double-digit royalties on future sales. Pfizer will also have a right of first negotiation on any potential future strategic transactions involving AXS-12 and AXS-14. Under the agreement, we are obligated to use commercially reasonable efforts to develop, manufacture and commercialize the compounds and products in the United States and to seek and maintain regulatory approvals for the compounds and products. The agreement will expire on a product-by-product basis upon expiration of the last-to-expire royalty term for such product. On expiration (but not earlier termination), we will have a perpetual, non-exclusive, fully paid, royalty-free and irrevocable license under the licensed patent rights and related data to develop, manufacture, use, commercialize and otherwise exploit the compounds. Either party may terminate the agreement for the other party's material breach following a cure period. Pfizer may immediately terminate the agreement upon certain insolvency events relating to us. We may terminate the agreement for any reason upon ninety days written notice to Pfizer at any time after the first anniversary of the agreement. If the license agreement with Pfizer is terminated for any reason, our business, financial condition, results of operations, and prospects will be materially harmed.

In 2012, we entered into three exclusive license agreements with Antecip Bioventures II LLC, or Antecip, an entity owned by our Chief Executive Officer and Chairman of the Board, Herriot Tabuteau, M.D., in which we were granted exclusive licenses to develop, manufacture, and commercialize Antecip's patents and applications related to the development of AXS-05, as well as two product candidates that are not currently in development, anywhere in the world for human therapeutic, veterinary, and diagnostic use. The agreements were amended in August 2015 to update the schedule of patents and applications subject to the license agreements. Pursuant to the agreements, we are required to use commercially reasonable efforts to develop, obtain regulatory approval for, and commercialize AXS-05. Under the terms of the agreements, we are required to pay to Antecip a royalty equal to 3.0% for AXS-05, of net sales of products containing the licensed technology by us, our affiliates, or permitted sublicensees. These royalty payments are subject to reduction by an amount up to 50.0% of any required payments to third parties. Unless earlier terminated by a party for cause or by us for convenience, the agreements remain in effect on a product-by-product and country-by-country basis until the later to occur of (1) the applicable product is no longer covered by a valid claim in that country or (2) 10 years from the first commercial sale of the applicable product in that country. Upon expiration of the agreements with respect to a product in a country, our license grant for that product in that country will become a fully paid up, royalty free, perpetual non-exclusive license. If Antecip terminates any of the agreements for cause, or if we exercise our right to terminate any of the agreements for convenience, the rights granted to us under such terminated agreement will revert to Antecip. To date, we have not been required to make any payments to Antecip under any of the license agreements. We are dependent upon the license agreements with Antecip and if any of the license agreements with Antecip are terminated for any reason, our business, financial condition, results of operations, and prospects will be materially harmed.

We may be subject to claims that our employees, independent contractors, or consultants have wrongfully used or disclosed alleged trade secrets of their former employers or other third parties.

As is common in the biotechnology and pharmaceutical industry, we employ individuals who were previously employed at other biotechnology or pharmaceutical companies, including our competitors or potential competitors. Although no claims against us are currently pending, we may be subject to claims that these individuals or we have inadvertently or otherwise used or disclosed trade secrets or other proprietary information of their former employers. Litigation may be necessary to defend against these claims. Even if we are successful in defending against these claims, litigation could result in substantial costs and be a distraction to management.

We may be unable to adequately prevent disclosure of trade secrets and other proprietary information.

We rely on trade secrets to protect our proprietary technological advances and know-how, especially where we do not believe patent protection is appropriate or obtainable. However, trade secrets are difficult to protect. We rely in part on confidentiality agreements with our employees, consultants, contractors, outside scientific collaborators, sponsored researchers, and other advisors, including the third parties we rely on to manufacture our product candidates, to protect our trade secrets and other proprietary information. However, any party with whom we have executed such an agreement may breach that agreement and disclose our proprietary information, including our trade secrets. Accordingly, these agreements may not effectively prevent disclosure of confidential information and may not provide an adequate remedy in the event of unauthorized disclosure of confidential information. Costly and time-consuming litigation could be necessary to enforce and determine the scope of our proprietary rights. In addition, others may independently discover our trade secrets and proprietary information. Further, the FDA, as part of its Transparency Initiative, a proposal to increase disclosure and make data more accessible to the public, is currently considering whether to make additional information publicly available on a routine basis, including information that we may consider to be trade secrets or other proprietary information, and it is not clear at the present time how the FDA's disclosure policies may change in the future, if at all. Failure to obtain or maintain trade secret protection could enable competitors to use our proprietary information to develop products that compete with our products or cause additional, material adverse effects upon our competitive business position and financial results.

We or our licensors may not be able to protect our intellectual property rights throughout the world.

Filing, prosecuting, and defending patent applications and patents on product candidates in all countries throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the United States can be less extensive than those in the United States. In addition, the laws of some foreign countries do not protect intellectual property rights to the same extent as federal and state laws in the United States. Consequently, we may not be able to prevent third parties from practicing our inventions in all countries outside the United States, or from selling or importing products made using our inventions in and into the United States or other jurisdictions. Competitors may use our technologies in jurisdictions where we have not obtained patent protection to develop their own products and further, may export otherwise infringing products to territories where we have patent protection, but where enforcement rights are not as strong as those in the United States. These products may compete with our product candidates and our patents or other intellectual property rights may not be effective or sufficient to prevent them from competing.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries do not favor the enforcement of patents and other intellectual property protection, which could make it difficult for us to stop the infringement of our patents generally. Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly and our patent applications at risk of not issuing, and could provoke third parties to assert claims against us. We may not prevail in any lawsuits that we initiate and the damages or other remedies awarded, if any, may not be commercially meaningful. Accordingly, our efforts to enforce our or our licensors' intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license.

RISKS RELATED TO LEGAL AND COMPLIANCE MATTERS

If we fail to comply with federal, state, and foreign healthcare laws, including fraud and abuse and transparency and health and other data protection, information privacy and security laws, we could face substantial penalties and our business, financial condition, results of operations, and prospects could be adversely affected.

As a pharmaceutical company, we are subject to many federal and state healthcare laws, including those described in the "Business—Government Regulation and Product Approval" section of the filed Annual Report on Form 10-K, such as the federal Anti-Kickback Statute, the federal civil and criminal False Claims Act, the civil monetary penalties statute, the Medicaid Drug Rebate statute and other price reporting requirements, the Veterans Health Care Act of 1992, the Physician Payments Sunshine Act, the Foreign Corrupt Practices Act of 1977, the Patient Protection and Affordable Care Act of 2010, and similar state and foreign laws. Even though we do not and will not control referrals of healthcare services or bill directly to Medicare, Medicaid, or other third-party payors, certain federal and state healthcare laws and regulations pertaining to fraud and abuse and patients' rights are and will be applicable to our business. We would be subject to healthcare fraud and abuse laws by both the federal government and the states in which we conduct our business.

There are numerous other laws and legislative and regulatory initiatives at the federal and state levels addressing privacy and security concerns, and some state privacy and security laws apply more broadly than the Health Insurance Portability and Accountability Act (HIPAA) and its implementing regulations. For example, California enacted legislation – the California Consumer Privacy Act, or CCPA – which went into effect in January 2020. The CCPA, among other things, creates data privacy obligations for covered companies and provides new privacy rights to California residents, including the right to opt out of certain disclosures of their information. The CCPA also creates a private right of action with statutory damages for certain data breaches, thereby potentially increasing risks associated with a data breach. Further, many data privacy and security laws within the U.S. have concurrent jurisdiction, which could subject us to enforcement by multiple agencies under multiple statutes for the same conduct (e.g., FTC enforcement under Section 5, HHS-Office for Civil Rights enforcement under HIPAA, and actions by state Attorneys General for violation of applicable state laws).

In addition, EU member states and other foreign jurisdictions, including Switzerland, have adopted data protection laws and regulations which impose significant compliance obligations. Moreover, the collection and use of personal health data in the EU, which was formerly governed by the provisions of the EU Data Protection Directive, was replaced with the EU General Data Protection Regulation, or the GDPR, in May 2018. The GDPR, which is wide-ranging in scope, imposes several requirements relating to the consent of the individuals to whom the personal data relates, the information provided to the individuals, the security and confidentiality of the personal data, data breach notification and the use of third-party processors in connection with the processing of personal data. The GDPR also imposes strict rules on the transfer of personal data out of the EU to the U.S., provides an enforcement authority and imposes large penalties for noncompliance, including the potential for fines of up to €20 million or 4% of the annual global revenues of the noncompliant company, whichever is greater. The GDPR requirements apply not only to third-party transactions, but also to transfers of information between us and our subsidiaries, including employee information. The recent implementation of the GDPR has increased our responsibility and liability in relation to personal data that we process, including in clinical trials, and we may in the future be required to put in place additional mechanisms to ensure compliance with the GDPR, which could divert management’s attention and increase our cost of doing business. Moreover, new regulation or legislative actions regarding data privacy and security (together with applicable industry standards) may increase our costs of doing business. In this regard, we expect that there will continue to be new proposed laws, regulations and industry standards relating to privacy and data protection in the United States, the EU and other jurisdictions, and we cannot determine the impact such future laws, regulations and standards may have on our business.

If we or our operations are found to be in violation of any federal or state healthcare, data or information privacy law, or any other governmental regulations that apply to us, we may be subject to penalties, including civil, criminal, and administrative penalties, damages, fines, disgorgement, debarment from government contracts, refusal of orders under existing contracts, exclusion from participation in U.S. federal or state health care programs, corporate integrity agreements, and the curtailment or restructuring of our operations, any of which could materially adversely affect our ability to operate our business and our financial results. If any of the physicians or other healthcare providers or entities with whom we expect to do business, including our collaborators, is found not to be in compliance with applicable laws, it may be subject to criminal, civil, or administrative sanctions, including but not limited to, exclusions from participation in government healthcare programs, which could also materially affect our business.

Although an effective compliance program can mitigate the risk of investigation and prosecution for violations of these laws, the risks cannot be entirely eliminated. Moreover, achieving and sustaining compliance with applicable federal and state fraud laws may prove costly. Any action against us for violation of these laws, even if we successfully defend against it, could cause us to incur significant legal expenses and divert our management’s attention from the operation of our business.

If the government or third-party payors fail to provide adequate coverage and payment rates for any of our current or future product candidates, or if health maintenance organization (HMOs) or long-term care facilities choose to use therapies that are less expensive, our revenue and prospects for profitability will be limited.

In both domestic and foreign markets, sales of our future products will depend in part upon the availability of coverage and reimbursement from third-party payors. Such third-party payors include government health programs such as Medicare and Medicaid, managed care providers, private health insurers, and other organizations. Coverage decisions may depend upon clinical and economic standards that disfavor new drug products when more established or lower cost therapeutic alternatives are already available or subsequently become available. Many private payors employ “new-to-market blocks” for newly launched medications and other products until the payors have had the opportunity to make a coverage decision based upon their internal review of such products. When a medication or other product is not covered, the patient is responsible to pay the full price, which can significantly limit utilization. If reimbursement is not available, or is available only to limited levels, our product candidates may be competitively disadvantaged, and we, or our collaborators, may not be able to successfully commercialize our product candidates. Even if coverage is provided, the approved reimbursement amount may not be high enough to allow us, or our collaborators, to establish or maintain a market share sufficient to realize a sufficient return on our or their investments. Alternatively, securing favorable reimbursement terms may require us to compromise pricing and prevent us from realizing an adequate margin over cost.

There is significant uncertainty related to third-party payor coverage and reimbursement of newly approved drugs. Marketing approvals, pricing, and reimbursement for new drug products vary widely from country to country. Current and future legislation may significantly change the approval requirements in ways that could involve additional costs and cause delays in obtaining approvals. Some countries require approval of the sale price of a drug before it can be marketed. In many countries, the pricing review period begins after marketing or product licensing approval is granted. In some foreign markets, prescription pharmaceutical pricing remains subject to continuing governmental control even after initial approval is granted. As a result, we might obtain marketing approval for a product in a particular country, but then be subject to price regulations that delay commercial launch of the product, possibly for lengthy time periods, which may negatively impact the revenues we are able to generate from the sale of the product in that country. Additionally, drug pricing is a key state and federal issue within the U.S., with recent legislation and additional proposals designed to bring more transparency to drug pricing, reduce the cost of prescription drugs under Medicare and Medicaid, review the relationship between pricing and manufacturer patient programs and reform government program reimbursement methodologies for drugs. We expect continued focus and pressure on drug pricing going forward. Adverse pricing limitations may hinder our ability or the ability of our collaborators to recoup our or their investment in one or more product candidates, even if our product candidates obtain marketing approval. Our ability, and the ability of our collaborators, to commercialize our product candidates will depend in part on the extent to which coverage and reimbursement for these products and related treatments will be available from government health administration authorities, private health insurers, and other organizations. Regulatory authorities and third-party payors, such as private health insurers and health maintenance organizations, decide which medications they will cover and establish reimbursement levels. The healthcare industry is acutely focused on cost containment, both in the United States and elsewhere. Several third-party payors are requiring that drug companies provide them with predetermined discounts from list prices, are using preferred drug lists to leverage greater discounts in competitive classes, are disregarding therapeutic differentiators within classes, and are challenging the prices charged for drugs. Brand drugs without generic equivalents are often included in therapeutic classes with other brands that have generic versions and may be similarly disadvantaged by the availability of low cost alternatives within the class, particularly if a generic version of the same agent is available in another form.

Third-party payors, whether foreign or domestic, or governmental or commercial, are developing increasingly sophisticated methods of controlling healthcare costs. In addition, in the United States, no uniform policy of coverage and reimbursement for drug products exists among third-party payors. Therefore, coverage and reimbursement for drug products can differ significantly from payor to payor. Further, we believe that future coverage and reimbursement will likely be subject to increased restrictions both in the United States and in international markets. Third-party coverage and reimbursement for our products or product candidates for which we receive regulatory approval may not be available or adequate in either the United States or international markets, which could have a negative effect on our business, financial condition, results of operations, and prospects.

Assuming coverage is approved, the resulting reimbursement payment rates might not be adequate. If payors subject our product candidates to maximum payment amounts or impose limitations that make it difficult to obtain reimbursement, providers may choose to use therapies which are less expensive or have fewer access restrictions when compared to our product candidates. Additionally, if payors require high copayments, beneficiaries may decline prescriptions and seek alternative therapies. We may need to conduct post-marketing studies in order to demonstrate the cost effectiveness of any future products to the satisfaction of hospitals and other target customers and their third-party payors. Such studies might require us to commit a significant amount of management time and financial and other resources. Our future products might not ultimately be considered cost effective. Adequate third-party coverage and reimbursement might not be available to enable us to maintain price levels sufficient to realize an appropriate return on investment in product development.

In addition, federal programs impose penalties on manufacturers of drugs marketed under an NDA, including 505(b)(2) drugs, in the form of mandatory additional rebates and/or discounts if commercial prices increase at a rate greater than the Consumer Price Index Urban, and these rebates and/or discounts, which can be substantial, may impact our ability to raise commercial prices. Regulatory authorities and third-party payors have attempted to control costs by limiting coverage and the amount of reimbursement for particular medications, which could affect our ability or that of our collaborators to sell our product candidates profitably. These payors may not view our products, if any, as cost effective, and coverage and reimbursement may not be available to our customers, or those of our collaborators, or may not be sufficient to allow our products, if any, to be marketed on a competitive basis. Cost control initiatives could cause us, or our collaborators, to decrease, discount, or rebate a portion of the price we, or they, might establish for products, which could result in lower than anticipated product revenues. If the realized prices for our products, if any, decrease or if governmental and other third-party payors do not provide adequate coverage or reimbursement, our prospects for revenue and profitability will suffer.

There may also be delays in obtaining coverage and reimbursement for newly approved drugs, and coverage may be more limited than the indications for which the drug is approved by the FDA or comparable foreign regulatory authorities. Moreover, eligibility for reimbursement does not imply that any drug will be paid for in all cases or at a rate that covers our costs, including research, development, manufacture, sale, and distribution. Interim reimbursement levels for new drugs, if applicable, may also not be sufficient to cover our costs and may only be temporary. Reimbursement rates may vary, by way of example, according to the use of the drug and the clinical setting in which it is used. Reimbursement rates may also be based on reimbursement levels already set for lower cost drugs or may be incorporated into existing payments for other services.

Prices paid for a drug also vary depending on the class of trade. Prices charged to government customers are subject to price controls, including ceilings, and private institutions obtain discounts through group purchasing organizations. Net prices for drugs may be further reduced by mandatory discounts or rebates required by government healthcare programs and demanded by private payors. Drugs approved under NDAs, including 505(b)(2) drugs, are subject to greater discounts and reporting obligations under federal programs than drugs approved under ANDAs, and the inflation penalty applicable to these products can equal the selling price. It is also not uncommon for market conditions to warrant multiple discounts to different customers on the same unit, such as purchase discounts to institutional care providers and rebates to the health plans that pay them, which reduces the net realization on the original sale.

In addition, increasingly, third-party payors are requiring higher levels of evidence of the benefits and clinical outcomes of new technologies and are challenging the prices charged. We, and our collaborators, cannot be sure that coverage will be available for any product candidate that we, or they, commercialize and, if available, that the reimbursement rates will be adequate. Further, the net reimbursement for drug products may be subject to additional reductions if there are changes to laws that presently restrict imports of drugs from countries where they may be sold at lower prices than in the United States. An inability to promptly obtain coverage and adequate payment rates from both government funded and private payors for any our product candidates for which we obtain marketing approval could have a material adverse effect on our operating results, our ability to raise capital needed to commercialize products, and our overall financial condition.

We are subject to new legislation, regulatory proposals, and healthcare payor initiatives that may increase our costs of compliance, and adversely affect our ability to market our products, obtain collaborators, and raise capital.

In the United States and some foreign jurisdictions, there have been a number of legislative and regulatory changes and proposed changes regarding the healthcare system that could prevent or delay marketing approval of our product candidates, restrict or regulate post-approval activities, and affect our ability, or the ability of our collaborators, to profitably sell any products for which we obtain marketing approval. It is unclear what impact these various efforts have and will have on our business operations and resulting financial condition. We expect that current laws, as well as other healthcare reform measures that may be adopted in the future, may result in more rigorous coverage criteria and in additional downward pressure on the price that we, or our collaborators, may receive for any approved products.

For example, there have been numerous attempts by Congress and the former Trump Administration, through legislation and executive orders, to repeal or materially modify various aspects of ACA. In addition, there have been multiple lawsuits challenging the constitutionality of the ACA as well as various components of the ACA. After proceeding through more recent appellate challenges, in June 2021, the Supreme Court upheld the ACA.

It is unclear how regulations and sub-regulatory policy, which fluctuate continually, may affect interpretation and further implementation of the ACA and its practical effects on our business. We are unable to predict the future course of federal or state healthcare legislation in the United States directed at broadening the availability of healthcare and containing or lowering the cost of healthcare, including drugs and biologics. Any further changes in the law or regulatory framework that reduce our revenue or increase our costs could also have a material and adverse effect on our business, financial condition and results of operations. Furthermore, we anticipate that the Biden Administration will issue a number of Executive Orders, which may alter the policies of the previous administration. Additionally, certain agency rules and policy statements of the prior four years may be rescinded. Further, the Biden Administration may propose substantial changes to the U.S. healthcare system, including expanding government-funded health insurance options. We are uncertain of the impact or outcome of these potential Executive Orders, rescission of rules and policy statements, or new legislation, especially any relative impact on the healthcare regulatory and policy landscape, or the impact they may have on our business.

While the full effect that the ACA may have on our business continues to evolve, we expect that the ACA, as well as other federal and state healthcare reform measures that may be adopted in the future, may result in more rigorous coverage criteria, increased regulatory burdens and operating costs, decreased net revenue from our pharmaceutical products, decreased potential returns from our development efforts, and additional downward pressure on the price that we receive for any approved drug. There is also an increasing focus on the price of drugs, both at the state and federal levels, and it is likely that additional pricing controls will be enacted and could harm our business, financial condition and results of operations. For instance, states such as California have begun enacting transparency laws aimed at curbing drug price increases and with the change in administration it is possible that President Biden may issue Executive Orders with the potential to change a number of prior executive branch actions on drug pricing. We continue to monitor the potential impact of proposals to lower prescription drug costs at the federal and state level. For example, under the Biden Administration's Build Back Better Agenda, Medicare negotiation of prescription drug costs with biopharmaceutical companies is proposed to lower prescription drug costs. Any reduction in reimbursement from Medicare or other government healthcare programs may result in a similar reduction in payments from private payors. The implementation of cost containment measures or other healthcare reforms may prevent us from being able to generate revenue, attain profitability or commercialize our drugs.

Legislative and regulatory proposals may also be made to expand post approval requirements and restrict sales and promotional activities for drugs. We cannot be sure whether additional legislative changes will be enacted, or whether the FDA regulations, guidance, or interpretations will be changed, or what the impact of such changes on the marketing approvals of our product candidates, if any, may be. In addition, increased scrutiny by the U.S. Congress of the FDA's approval process may significantly delay or prevent marketing approval, as well as subject us to more stringent product labeling and post-marketing testing and other requirements.

In addition, there have been a number of other legislative and regulatory proposals aimed at changing the pharmaceutical industry. For instance, the enacted Drug Supply Chain Security Act, or DSCSA imposes obligations on manufacturers of prescription drug products for commercial distribution, regulating the distribution of the products at the federal level, and sets certain standards for federal or state registration and compliance of entities in the supply chain (manufacturers and repackagers, wholesale distributors, third-party logistics providers, and dispensers). The DSCSA preempts certain previously enacted state pedigree laws and the pedigree requirements of the Prescription Drug Marketing Act, or PDMA. Trading partners within the drug supply chain must now ensure certain product tracing requirements are met that they are doing business with other authorized trading partners; and they are required to exchange transaction information, transaction history, and transaction statements. Product identifier information (an aspect of the product tracing scheme) is also now required. The DSCSA requirements, development of standards, and the system for product tracing have been and will continue to be phased in over a period of years, with the FDA indicating it would permit certain exemptions and exclusions, and enforcement discretion on certain aspects due to the COVID-19 pandemic, although this situation may continue to evolve. The distribution of product samples continues to be regulated under the PDMA, and some states also impose regulations on drug sample distribution.

Compliance with the federal track and trace requirements may increase our operational expenses and impose significant administrative burdens. As a result of these and other new proposals, we may determine to change our current manner of operation, provide additional benefits, or change our contract arrangements, any of which could have a material adverse effect on our business, financial condition, and results of operations.

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

In international markets, reimbursement and health care payment systems vary significantly by country, and many countries have instituted price ceilings on specific products and therapies. In some countries, particularly the countries of the EU, 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 coverage and 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. There can be no assurance that our products will be considered cost-effective by third-party payors, that an adequate level of reimbursement will be available, or that the third-party payors' reimbursement policies will not adversely affect our ability to sell our products profitably. 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.

Our employees, independent contractors, consultants, commercial partners, principal investigators, or CROs may engage in misconduct or other improper activities, including noncompliance with regulatory standards and requirements, which could have a material adverse effect on our business.

We are exposed to the risk of employee fraud or other misconduct. Misconduct by employees, independent contractors, consultants, commercial partners, principal investigators, or CROs could include intentional, reckless, negligent, or unintentional failures to comply with FDA regulations, comply with applicable fraud and abuse laws, provide accurate information to the FDA, report financial information or data accurately, or disclose unauthorized activities to us. This misconduct could also involve the improper use or misrepresentation of information obtained in the course of clinical trials, which could result in regulatory sanctions and serious harm to our reputation. It is not always possible to identify and deter this type of 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 be in compliance with such 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, financial condition, and results of operations, including the imposition of significant fines or other sanctions. Further, even if we are successful in mounting a defense, we may incur substantial costs in preparing and maintaining our defense and any such action would be time- and resource-intensive and potentially divert management's attention from the business, which could adversely affect our ability to operate our business and our results of operations.

Our third-party manufacturers may use hazardous materials in the production of our product candidates and if so, they must comply with environmental laws and regulations, which can be expensive and restrict how we or they do business.

Manufacturing activities for the production of our product candidates involve the controlled storage, use, and disposal of hazardous materials, including the components of our product candidates, and other hazardous compounds. Our third-party manufacturers and we are subject to federal, state, and local laws and regulations governing the use, manufacture, storage, handling, release, and disposal of, and exposure to, these hazardous materials. Violation of these laws and regulations could lead to substantial fines and penalties. Although we believe that our safety procedures, and those of our third-party manufacturers, for handling and disposing of these materials comply with the standards prescribed by these laws and regulations, we cannot eliminate the risk of accidental contamination or injury from these materials. In the event of an accident, state or federal authorities may curtail our use of these materials and interrupt our business operations. In addition, we could become subject to potentially material liabilities relating to the investigation and cleanup of any contamination, whether currently unknown or caused by future releases.

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

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

RISKS RELATED TO OUR BUSINESS OPERATIONS

We will need to significantly increase the size of our organization, and we may experience difficulties in managing growth. If we are unable to implement appropriate controls and procedures to manage our growth, we will not be able to implement our business plan successfully.

As of April 26, 2022, we had 116 full-time employees. We will need to substantially expand our managerial, commercial, financial, manufacturing, and other personnel resources in order to manage our operations and prepare for the commercialization of our product candidates, if approved. Our management, personnel, systems, and facilities currently in place may not be adequate to support this future growth. In addition, we may not be able to recruit and retain qualified personnel in the future, particularly for sales and marketing positions, due to competition for personnel among pharmaceutical businesses, and the failure to do so could have a significant negative impact on our future product revenues and business results. Further, the value to employees of stock options or restricted stock units that vest over time is significantly affected by movements in our stock price that are beyond our control and may at any time be insufficient to counteract more lucrative offers from other companies. Our need to effectively manage our operations, growth and various projects requires that we:

- continue the hiring and training of personnel for an effective commercial organization in anticipation of the potential approval of our product candidates, and establish appropriate systems, policies and infrastructure to support that organization;
- ensure that our consultants and other service providers successfully carry out their contractual obligations, provide high quality results, and meet expected deadlines;
- continue to carry out our own contractual obligations to our licensors and other third parties; and
- continue to improve our operational, financial, and management controls, reporting systems, and procedures.

We may be unable to successfully implement these tasks on a larger scale and, accordingly, may not achieve our development and commercialization goals.

Our continued growth could strain our personnel resources and infrastructure, and if we are unable to implement appropriate controls and procedures to manage our growth, we will not be able to implement our business plan successfully.

As we continue to complete our clinical trials and prepare for commercialization of our product candidates, and as our company continues to grow, we may experience significant strains on our resources, including to our administrative, operational and financial infrastructure, which will result in additional burdens on management. Our success will depend in part upon the ability of our senior management to manage this growth effectively. To do so, we must continue to hire, train and manage new employees as needed. If our new hires perform poorly, or if we are unsuccessful in hiring, training, managing and integrating these new employees, or if we are not successful in retaining our existing employees, our business would be harmed. To manage the expected growth of our operations and personnel, we will need to continue to improve our operational, financial and management controls and our reporting systems and procedures.

We may acquire businesses or products, or form strategic alliances in the future, and we may not realize the benefits of such acquisitions or alliances.

We may acquire additional businesses or products, form strategic alliances or create joint ventures with third parties that we believe will complement or augment our existing business. If we acquire businesses with promising markets or technologies, we may not be able to realize the benefit of acquiring such businesses if we are unable to successfully integrate them with our existing operations and company culture. We may encounter numerous difficulties in developing, manufacturing, and marketing any new products resulting from a strategic alliance or acquisition that delay or prevent us from realizing their expected benefits or enhancing our business. We cannot assure you that, following any such acquisition, we will achieve the expected synergies to justify the transaction.

We may not be able to manage our business effectively if we are unable to attract and retain key personnel.

We may not be able to attract or retain qualified management and commercial, scientific, and clinical personnel due to the intense competition for qualified personnel among biotechnology, pharmaceutical, and other businesses. If we are not able to attract and retain necessary personnel to accomplish our business objectives, we may experience constraints that will significantly impede the achievement of our development objectives, our ability to raise additional capital and our ability to implement our business strategy.

Our industry has experienced a high rate of turnover of management personnel in recent years. We are highly dependent on the skills and leadership of our management team, including Dr. Herriot Tabuteau, our Chief Executive Officer and Chairman of the Board. We do not have formal employment agreements with any of our management team. However, we typically enter into offer letters with our executive officers and key personnel. Our senior management may terminate their employment with us at any time. If we lose one or more members of our senior management team, our ability to successfully implement our business strategy could be seriously harmed. Replacing these employees may be difficult and may take an extended period of time because of the limited number of individuals in our industry with the breadth of skills and experience required to develop, gain regulatory approval of, and commercialize products successfully. Competition to hire from this limited pool is intense, and we may be unable to hire, train, retain, or motivate additional key personnel. We do not maintain “key person” insurance for any of our executives or other employees.

If we fail to maintain an effective system of internal controls over financial reporting, we may not be able to accurately report our financial condition, results of operations or cash flows, which may adversely affect investor confidence in us and, as a result, the value of our common stock.

As a public company, we continue to incur significant legal, accounting and other expenses that we did not incur as a private company. In addition, the Sarbanes-Oxley Act, as well as rules subsequently implemented by the SEC and the Nasdaq Global Market, impose various requirements on public companies, including requiring establishment and maintenance of effective disclosure controls and internal control over financial reporting and changes in corporate governance practices. Our management and other personnel devote a substantial amount of time to these compliance initiatives. Moreover, these rules and regulations have increased our legal and financial compliance costs and have made some activities more time-consuming and costly.

The Sarbanes-Oxley Act requires, among other things, that we maintain effective internal controls for financial reporting and disclosure controls and procedures. Under Section 404(a) of the Sarbanes-Oxley Act, we are required to furnish a report by management on, among other things, the effectiveness of our internal control over financial reporting. This report must include disclosure of any material weaknesses identified by our management during its periodic assessment of our internal control over financial reporting. A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting that results in more than a reasonable possibility that a material misstatement of annual or interim financial statements will not be prevented or detected on a timely basis. Section 404(b) of the Sarbanes-Oxley Act also requires our independent auditors to attest to, and report on, this management assessment. Ensuring that we have adequate internal controls in place so that we can produce accurate financial statements on a timely basis is a costly and time-consuming effort. If we are not able to comply with the requirements of Section 404 or if we or our independent registered public accounting firm are unable to attest to the effectiveness of our internal control over financial reporting, investors may lose confidence in the accuracy and completeness of our financial reports, the market price of our stock could decline and we could be subject to sanctions or investigations by Nasdaq, the SEC, or other regulatory authorities, which would require additional financial and management resources.

During the evaluation and testing process, if we identify one or more material weaknesses in our internal control over financial reporting, we would be required to implement remediation procedures aimed at mitigating the control weakness or weaknesses. Until such remediation procedures succeed in mitigating the control weakness or weaknesses, we would be unable to assert that our internal control over financial reporting is effective. We cannot assure you that there will not be material weaknesses in our internal control over financial reporting in the future. Any failure to maintain internal control over financial reporting could severely inhibit our ability to timely and accurately report our financial condition, results of operations or cash flows. The cost of compliance with Section 404 requires us to incur substantial accounting expense and expend significant management time on compliance related issues as we implement additional corporate governance practices and comply with reporting requirements. Although we currently use the services of a third-party accounting firm to assist us with internal controls, we currently do not have an internal audit group, and we may need to hire additional accounting and financial staff with appropriate public company experience and technical accounting knowledge.

Moreover, if we are not able to comply with these requirements in a timely manner or if we or our independent registered public accounting firm identifies deficiencies in our internal control over financial reporting that are deemed to be material weaknesses, the market price of our stock could decline, we could lose investor confidence in the accuracy and completeness of our financial reports, and we could be subject to sanctions or investigations by the Nasdaq Global Market, the SEC or other regulatory authorities, which would require additional financial and management resources. Failure to remedy any material weakness in our internal control over financial reporting, or to implement or maintain other effective control systems required of public companies, could also restrict our future access to the capital markets.

Our disclosure controls and procedures may not prevent or detect all errors or acts of fraud.

We are subject to the periodic reporting requirements of the Securities Exchange Act of 1934, as amended, or the Exchange Act. Our disclosure controls and procedures are designed to reasonably assure that information required to be disclosed by us in reports we file or submit under the Exchange Act is accumulated and communicated to management, recorded, processed, summarized and reported within the time periods specified in the rules and forms of the SEC. We believe that any disclosure controls and procedures or internal controls and procedures, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met.

In addition, as discussed above, the Sarbanes-Oxley Act requires, among other things, that we maintain effective disclosure controls and procedures and internal control over financial reporting. In particular, Section 404 of the Sarbanes-Oxley Act requires us to perform system and process evaluation and testing of our internal control over financial reporting to allow management to report on, and our independent registered public accounting firm to attest to, the effectiveness of our internal control over financial reporting. Pursuant to Section 404, we are required to provide an annual management report on the effectiveness of our internal control over financial reporting and we will also be required to include with such annual report an attestation report on internal controls over financial reporting issued by our independent registered public accounting firm. In the future, our independent registered public accounting firm may issue a report that is adverse in the event that we have not maintained effective internal controls over financial reporting, in all material respects. Any failure to maintain effective disclosure controls and internal control over financial reporting could have a material and adverse effect on our business, results of operations and financial condition and could cause a decline in the trading price of our common stock.

These inherent limitations include the realities that judgments in decision-making can be faulty, and that breakdowns can occur because of simple error or mistake. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people or by an unauthorized override of the controls. Accordingly, because of the inherent limitations in our control system, misstatements or insufficient disclosures due to error or fraud may occur and not be detected.

Our business and operations would suffer in the event of system failures.

Despite our implementation of security measures, our internal computer systems and those of our CROs and other contractors and consultants are vulnerable to damage from computer viruses, unauthorized access, natural disasters, terrorism, war, telecommunication and electrical failures, cyber-attacks or cyber-intrusions over the Internet, attachments to emails, persons inside our organization, or persons with access to systems inside our organization. The risk of a security breach or disruption, particularly through cyber-attacks or cyber intrusion, including by computer hackers, foreign governments, and cyber terrorists, has generally increased as the number, intensity and sophistication of attempted attacks and intrusions from around the world have increased. If such an event were to occur and cause interruptions in our operations, it could result in a material disruption of our product candidate development programs. For example, the loss of clinical trial data from completed, ongoing, or planned clinical trials could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data. 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 personal, confidential, or proprietary information, we could incur liability and the further development of any of our product candidates could be delayed.

RISKS RELATED TO OWNERSHIP OF OUR COMMON STOCK

An active trading market for our common stock may not be sustained.

In November 2015, we closed our initial public offering. Prior to our initial public offering, there was no public market for shares of our common stock. Although we have completed our initial public offering and shares of our common stock are listed and trading on The Nasdaq Global Market, an active trading market for our shares may not be sustained. If an active market for our common stock does not continue, it may be difficult for our stockholders to sell their shares without depressing the market price for the shares or sell their shares at or above the prices at which they acquired their shares or sell their shares at the time they would like to sell. Any inactive trading market for our common stock may also impair our ability to raise capital to continue to fund our operations by selling shares.

The market price of our common stock may be highly volatile.

The trading price of our common stock is likely to be highly volatile. For example, in 2019, we experienced an extraordinary level of appreciation in our stock price. Such levels of gain are unlikely to continue in the future. For example, throughout the course of fiscal years 2020, 2021, and thus far in 2022, we saw both significant appreciations and depreciations in our stock price. As a result of this volatility, investors may not be able to sell their common stock at or above the price paid for the shares. The market price for our common stock may be influenced by many factors, including:

- delays in the commencement, enrollment, and ultimate completion, of our planned and ongoing Phase 3 clinical trials for our product candidates;
- any delay or refusal on the part of the FDA in approving an NDA for any of our current and future product candidates;
- the commercial success of any of our current and future product candidates, if approved by the FDA;
- operating and stock price performance of other companies that investors deem comparable to ours;
- recommendations by securities analysts;
- news relating to our industry as a whole and news relating to trends in our markets;
- results of clinical trials of any of our current and future product candidates or those of our competitors;
- actual or anticipated variations in quarterly or annual operating results;
- failure to meet or exceed financial projections we provide to the public, if any;
- failure to meet or exceed the estimates and projections of the investment community, including securities analysts;
- introduction of competitive products or technologies;

- changes or developments in laws or regulations applicable to our product candidates;
- the perception of the pharmaceutical industry by the public, legislatures, regulators, and the investment community;
- general economic and market conditions and overall fluctuations in U.S. equity markets;
- data or security breaches;
- developments concerning our sources of manufacturing supply, warehousing, and inventory control;
- disputes or other developments relating to patents or other proprietary rights;
- additions or departures of key scientific or management personnel;
- announcements of investigations or regulatory scrutiny of our operations or lawsuits filed against us;
- capital commitments;
- investors' general perception of our company and our business;
- announcements and expectations of additional financing efforts, including the issuance of debt, equity or convertible securities;
- sales of our common stock, including sales by our directors and officers or significant stockholders;
- changes in the market valuations of companies similar to us;
- announcements by us or our competitors of significant acquisitions, strategic partnerships, or divestitures;
- general conditions or trends in our industry; and
- the other factors described in this "Risk Factors" section.

In addition, the stock market in general, and the market for mid-cap pharmaceutical and biotechnology companies in particular, have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of these companies. Broad market and industry factors may negatively affect the market price of our common stock, regardless of our actual operating performance.

Further, in the past, stockholders have initiated class action lawsuits against pharmaceutical and biotechnology companies following periods of volatility in the market prices of these companies' stocks. Such litigation, if instituted against us, could cause us to incur substantial costs and divert management's attention and resources from our business.

If equity research analysts do not publish research or reports, or publish unfavorable research or reports, about us, our business, or our market, our stock price and trading volume could decline.

The trading market for our common stock is influenced by the research and reports that equity research analysts publish about us and our business. We do not have any control over the equity research analysts that provide research coverage of our common stock or the content and opinions included in their reports. The price of our stock could decline if one or more equity research analysts downgrades our stock or issue other unfavorable commentary or research. If one or more equity research analysts ceases coverage of our company or fails to publish reports on us regularly, demand for our stock could decrease, which in turn could cause our stock price or trading volume to decline.

Our quarterly operating results may fluctuate significantly.

We expect our operating results to be subject to quarterly fluctuations. Our net loss and other operating results will be affected by numerous factors, including:

- whether the FDA requires us to complete additional, unanticipated studies, tests, or other activities prior to approving any of our current and future product candidates, which would likely further delay any such approval;
- if any of our current or future product candidates is approved, our ability to establish the necessary commercial infrastructure to launch this product candidate without substantial delays, including hiring sales and marketing personnel and contracting with third parties for warehousing, distribution, cash collection, and related commercial activities;
- our ability to identify and enter into third-party manufacturing arrangements capable of manufacturing any of our current or future product candidates in commercial quantities;
- our execution of other collaborative, licensing, or similar arrangements and the timing of payments we may make or receive under these arrangements;
- variations in the level of expenses related to our future development programs;
- any product liability or intellectual property infringement lawsuit in which we may become involved;
- regulatory developments affecting our current and future product candidates, or the product candidates of our competitors; and
- if any of our current or future product candidates receive regulatory approval, the level of underlying demand for such product candidate and wholesaler buying patterns.

If our quarterly or annual operating results fall below the expectations of investors or securities analysts, the price of our common stock could decline substantially. Furthermore, any quarterly or annual fluctuations in our operating results may, in turn, cause the price of our stock to fluctuate substantially. We believe that quarterly comparisons of our financial results are not necessarily meaningful and should not be relied upon as an indication of our future performance.

Raising additional funds by issuing securities may cause dilution to existing stockholders and raising funds through lending and licensing arrangements may restrict our operations or require us to relinquish proprietary rights.

Until such time, if ever, as we can generate substantial product revenues, we expect to finance our cash needs through a combination of equity offerings, debt financings, grants, and license and development agreements in connection with any collaborations. To the extent that we raise additional capital by issuing equity securities, our existing stockholders' ownership will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect your rights as a common stockholder. Debt financing and preferred equity financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures, or declaring dividends.

If we raise additional funds through collaborations, strategic alliances, or marketing, distribution or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies, future revenue streams, research programs, or product candidates or grant licenses on terms that may not be favorable to us. Any debt financing we enter into may involve covenants that restrict our operations. These restrictive covenants may include limitations on additional borrowing and specific restrictions on the use of our assets as well as prohibitions on our ability to create liens, pay dividends, redeem our stock, or make investments. If we are unable to raise additional funds through equity or debt financings when needed, we may be required to delay, limit, reduce, or terminate our product development or future commercialization efforts or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves.

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

As of April 26, 2022, our executive officers, directors, and 5% stockholders and their affiliates beneficially owned an aggregate of approximately 33% of our outstanding common stock. As a result, these stockholders have significant influence and may be able to determine all matters requiring stockholder approval. For example, these stockholders may be able to control elections of directors, amendments of our organizational documents, or approval of any merger, sale of assets, or other major corporate transaction. This concentration of ownership could delay or prevent any acquisition of our company on terms that other stockholders may desire and may adversely affect the market price of our common stock.

Some of these persons or entities may have interests different than our other stockholders. For example, these stockholders, if they acted together, could significantly influence all matters requiring approval by our stockholders, including the election of directors and the approval of mergers or other business combination transactions. These stockholders may be able to determine all matters requiring stockholder approval. The interests of these stockholders may not always coincide with our interests or the interests of other stockholders. This may also prevent or discourage unsolicited acquisition proposals or offers for our common stock that other stockholders may feel are in their best interest and our large stockholders may act in a manner that advances their best interests and not necessarily those of other stockholders, including seeking a premium value for their common stock, and might affect the prevailing market price for our common stock.

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

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

As of April 26, 2022, we have outstanding 38,913,550 shares of common stock and 6,998,245 shares of common stock equivalents that would increase the number of common stock outstanding if these instruments were exercised or converted, including stock options to purchase common stock based on vesting requirements and warrants to purchase common stock, as well as outstanding restricted stock units. Of our currently outstanding shares of common stock, 30,911,550 are freely tradable. The remainder of the outstanding shares of common stock are held by our affiliates and may be considered “control securities” for purposes of Rule 144 under the Securities Act.

In addition, we have filed one or more registration statements on Form S-8 registering the issuance of an aggregate of 10,453,341 shares of common stock subject to options or other equity awards issued or reserved for future issuance under our 2015 Omnibus Incentive Compensation Plan, or the Plan. Shares registered under registration statements on Form S-8 will be available for sale in the public market subject to vesting arrangements and exercise of options, the lock-up agreements described above and the restrictions of Rule 144 in the case of our affiliates.

Our management will have broad discretion in the use of the net proceeds from our capital raises, including the proceeds from sales pursuant to our Sales Agreement, and may not use them effectively.

Our management will have broad discretion in the application of the net proceeds from our capital raises, which we refer to as our Capital Raises, including the proceeds from sales pursuant to our March 2022 “at-the-market” sales agreement with SVB Securities, which provides for the sale of up to \$200.0 million of our common stock from time to time, and our stockholders will not have the opportunity as part of their investment decision to assess whether the net proceeds from our Capital Raises are being used appropriately. Our stockholders may not agree with our decisions, and our use of the proceeds may not yield any return on investment for our stockholders. Because of the number and variability of factors that will determine our use of the net proceeds from our Capital Raises their ultimate use may vary substantially from their currently intended use. Our failure to apply the net proceeds of our Capital Raises effectively could compromise our ability to pursue our growth strategy and we might not be able to yield a significant return, if any, on our investment of those net proceeds. Our stockholders will not have the opportunity to influence our decisions on how to use our net proceeds from our Capital Raises. Pending their use, we may invest the net proceeds from our Capital Raises in short-term, investment-grade, interest-bearing instruments and U.S. government securities. These temporary investments are not likely to yield a significant return.

The use of our net operating loss carryforwards and research tax credits may be limited.

Our net operating loss carryforwards and any future research and development tax credits may expire and not be used. As of December 31, 2021, we had U.S. federal net operating loss, NOL, carryforwards of approximately \$364 million. Net operating loss carry forwards amounting to \$60 million generated before the 2018 tax year will start expiring beginning 2032, if we have not used them prior to that time, and the net operating losses of approximately \$304 million generated in 2018 and later have an indefinite carryforward period. Net operating loss carry forwards arising in taxable years ending after December 31, 2017, are no longer subject to expiration under the Internal Revenue Code of 1986, as amended, or the Code. Additionally, our ability to use any net operating loss and credit carryforwards to offset taxable income or tax, respectively, in the future will be limited under Sections 382 and 383 of the Code, respectively, if we have a cumulative change in ownership of more than 50% within a three-year period. The completion of our initial public offering, together with our other public and private Capital Raises, and other transactions that have occurred, may trigger, or may have already triggered, such an ownership change. In addition, since we may need to raise additional funding to finance our operations, we may undergo further ownership changes in the future. We have never completed an analysis as to whether such a change of ownership has occurred, but in such an event, we will be limited regarding the amount of net operating loss carryforwards and research tax credits that could be utilized annually in the future to offset taxable income or tax, respectively. Any such annual limitation may significantly reduce the utilization of the net operating loss carryforwards and research tax credits before they expire. In addition, certain states have suspended use of net operating loss carryforwards for certain taxable years, and other states are considering similar measures. As a result, we may incur higher state income tax expense in the future. Depending on our future tax position, continued suspension of our ability to use net operating loss carryforwards in states in which we are subject to income tax could have an adverse impact on our results of operations and financial condition.

On March 27, 2020, the Coronavirus Aid, Relief, and Economic Security Act, or the CARES Act, was enacted and signed into law, and GAAP requires recognition of the tax effects of new legislation during the reporting period that includes the enactment date. The CARES Act, among other things, includes changes to the tax provisions that benefits business entities and makes certain technical corrections to the 2017 Tax Cuts and Jobs Act including permitting NOLs, carryovers and carrybacks to offset 100% of taxable income for taxable years beginning before 2021. In addition, the CARES Act allows NOLs incurred in 2018, 2019, and 2020 to be carried back to each of the five preceding taxable years to generate a refund of previously paid income taxes. The CARES Act provides other reliefs and stimulus measures. We have evaluated the impact of the CARES Act, however, at present we do not expect that any provision of the CARES Act would result in a material cash benefit to us or have a material impact on our financial statements or internal controls over financial reporting.

Because we do not intend to pay dividends on our common stock, returns for our stockholders will be limited to any increase in the value of our stock.

We have never declared or paid any cash dividends on our capital stock. In addition, the terms of our existing credit facility with Hercules preclude us from paying cash dividends without Hercules' consent. We currently intend to retain all available funds and any future earnings to support our operations and finance the growth and development of our business and do not anticipate declaring or paying any cash dividends on our common stock for the foreseeable future. Any return to stockholders will therefore be limited to the appreciation of their stock, if any. Investors seeking cash dividends should not purchase our common stock.

Provisions in our corporate charter documents and under Delaware law may prevent or frustrate attempts by our stockholders to change our management and hinder efforts to acquire a controlling interest in us, and the market price of our common stock may be lower as a result.

There are provisions in our amended and restated certificate of incorporation and amended and restated bylaws that may make it difficult for a third-party to acquire, or attempt to acquire, control of our company, even if a change in control was considered favorable by you and other stockholders. For example, our board of directors will have the authority to issue up to 10,000,000 shares of preferred stock and to fix the price, rights, preferences, privileges, and restrictions of the preferred stock without any further vote or action by our stockholders. We do not currently have any preferred stock outstanding. The issuance of shares of preferred stock may delay or prevent a change in control transaction. As a result, the market price of our common stock and the voting and other rights of our stockholders may be adversely affected. An issuance of shares of preferred stock may result in the loss of voting control to other stockholders.

In addition, we are subject to the anti-takeover provisions of Section 203 of the Delaware General Corporation Law, or DGCL, which regulates corporate acquisitions by prohibiting Delaware corporations from engaging in specified business combinations with particular stockholders of those companies. These provisions could discourage potential acquisition proposals and could delay or prevent a change in control transaction. They could also have the effect of discouraging others from making tender offers for our common stock, including transactions that may be in your best interests. These provisions may also prevent changes in our management or limit the price that investors are willing to pay for our stock.

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

Our amended and restated certificate of incorporation provides that, unless we consent in writing to the selection of an alternate form, the Court of Chancery of the State of Delaware will be the sole and exclusive forum for (1) any derivative action or proceeding brought on our behalf, (2) any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers, employees or agents to us or our stockholders, (3) any action asserting a claim arising pursuant to the DGCL, or (4) any other action asserting a claim against us that is governed by the internal affairs doctrine, in each such case subject to such Court of Chancery having personal jurisdiction over the indispensable parties named as defendants therein.

Any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock shall be deemed to have notice of and to have consented to the provisions of our amended and restated certificate of incorporation described above. This choice of forum provision 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 or agents, which may discourage such lawsuits against us and our directors, officers, employees, and agents. Further, this choice of forum provision does not preclude or contract the scope of exclusive federal or concurrent jurisdiction for any actions brought under the Securities Act or the Exchange Act. Section 27 of the Exchange Act creates exclusive federal jurisdiction over all suits brought to enforce any duty or liability created by the Exchange Act or the rules and regulations thereunder. As a result, the exclusive forum provision will not apply to suits brought to enforce any duty or liability created by the Exchange Act or any other claim for which the federal courts have exclusive jurisdiction. In addition, Section 22 of the Securities Act creates concurrent jurisdiction for federal and state courts over all suits brought to enforce any duty or liability created by the Securities Act or the rules and regulations thereunder. As a result, the exclusive forum provision will not apply to suits brought to enforce any duty or liability created by the Securities Act or any other claim for which the federal and state courts have concurrent jurisdiction. Accordingly, our exclusive forum provision will not relieve us of our duties to comply with the federal securities laws and the rules and regulations thereunder, and our stockholders will not be deemed to have waived our compliance with these laws, rules and regulations.

If a court were to find these provisions of our amended and restated certificate of incorporation inapplicable to, or unenforceable in respect of, one or more of the specified types of actions or proceedings, we may incur additional costs associated with resolving such matters in other jurisdictions, which could adversely affect our business, financial condition, and results of operations. Even if we are successful in defending against these claims, litigation could result in substantial costs and be a distraction to management and other employees.

Item 6. Exhibits.

The exhibits filed as part of this Quarterly Report on Form 10-Q are set forth on the Exhibit Index, which is incorporated herein by reference.

INDEX OF EXHIBITS

Exhibit Number	Description
10.1**	<u>Second Amendment to Hercules Loan and Security Agreement, dated March 27, 2022, by and among Axsome Therapeutics, Inc., the Lenders who from time to time may be party thereto, and Hercules Capital, Inc., in its capacity as administrative agent and collateral agent for itself and the Lenders.</u>
10.2	<u>Asset Purchase Agreement, dated as of March 25, 2022, between Jazz Pharmaceuticals, plc and Axsome Therapeutics, Inc. (Incorporated by reference, Exhibit 10.1 to the Company's Current Report on Form 8-K, filed March 31, 2022).</u>
31.1**	<u>Certification of Principal Executive Officer pursuant to Rule 13a-14(a)/15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.</u>
31.2**	<u>Certification of Principal Financial Officer pursuant to Rule 13a-14(a)/15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.</u>
32.1**	<u>Certification of Principal Executive Officer pursuant to 18 U.S.C. §1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (furnished herewith).</u>
32.2**	<u>Certification of Principal Financial Officer pursuant to 18 U.S.C. §1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (furnished herewith).</u>
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 Database 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 Exhibits 101.)

**Filed herewith.

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.

AXSOME THERAPEUTICS, INC.

Date: May 2, 2022

By /s/ Herriot Tabuteau, M.D.
Herriot Tabuteau, M.D.
President and Chief Executive Officer
(Principal Executive Officer)

Date: May 2, 2022

By /s/ Nick Pizzie
Nick Pizzie
Chief Financial Officer
(Principal Financial and Accounting Officer)

[Exhibit B intentionally omitted. It is not material and would be competitively harmful if publicly disclosed.]
SECOND AMENDMENT TO LOAN AND SECURITY AGREEMENT

THIS SECOND AMENDMENT TO LOAN AND SECURITY AGREEMENT (this "Amendment"), dated as of March 27, 2022, is entered into by and among AXSOME THERAPEUTICS, INC., a Delaware corporation ("Borrower"), and the several banks and other financial institutions or entities party hereto as Lender, constituting the Required Lenders and HERCULES CAPITAL, INC., a Maryland corporation, in its capacity as administrative agent and collateral agent for Lender (in such capacity, "Agent").

A. Borrower, Lenders and Agent are parties to that certain Loan and Security Agreement, dated as of September 25, 2020, (as amended by the First Amendment to Loan and Security Agreement, dated as of October 14, 2021, the "Existing Loan Agreement"; and the Existing Loan Agreement, as amended by this Amendment and as further amended, restated, supplemented or otherwise modified from time to time, the "Loan Agreement").

B. Borrower, Lenders and Agent desire to modify the terms of the Existing Loan Agreement as set forth in this Amendment.

SECTION 1 Definitions; Interpretation.

(a) **Terms Defined in Loan Agreement.** All capitalized terms used in this Amendment (including in the recitals hereof) and not otherwise defined herein shall have the meanings assigned to them in the Loan Agreement.

(b) **Rules of Construction.** The rules of construction that appear in Section 1.3 of the Loan Agreement shall be applicable to this Amendment and are incorporated herein by this reference.

SECTION 2 Amendments to the Loan Agreement.

(a) Upon satisfaction of the conditions set forth in Section 5 hereof, the Existing Loan Agreement is hereby amended as follows:

(i) Exhibit A attached hereto sets forth a clean copy of the Loan Agreement as amended hereby;

(ii) In Exhibit B hereto, deletions of the text in the Existing Loan Agreement (including, to the extent included in such Exhibit B, each Schedule or Exhibit to the Existing Loan Agreement) are indicated by ~~struck-through text~~, and insertions of text are indicated by **bold, double-underlined text**.

(b) **References Within Existing Loan Agreement.** Each reference in the Existing Loan Agreement to "this Agreement" and the words "hereof," "herein," "hereunder," or words of like import, shall mean and be a reference to the Existing Loan Agreement as amended by this Amendment. This Amendment shall be a Loan Document.

SECTION 3 Conditions to Effectiveness of this Amendment. The effectiveness of this Amendment shall be subject to Agent's receipt of the following documents, in form and substance satisfactory to Agent, or, as applicable, the following conditions being met:

(a) Agent's receipt of this Amendment, executed by Agent, each Lender and Borrower;

(b) on the date hereof, (i) the representations and warranties contained in Section 6 shall be true and correct on and as of the date hereof as though made on and as of such date; and (ii) there exist no Events of Default or events that with the passage of time would result in an Event of Default;

(c) an amendment fee equal to \$100,000 payable to the Agent on behalf of the Lender on the date hereof. If the due date of such fee would otherwise fall on a day that is not a Business Day (the "Amendment Fee Due Date"), such fee shall be considered paid on the Amendment Fee Due Date, if received on the next succeeding Business Day; and

(d) Borrower shall have paid (i) all invoiced costs and expenses then due in accordance with Section 8(e), and (ii) all other fees, costs and expenses, if any, due and payable as of the date hereof under the Loan Agreement.

SECTION 4 Section 2 Effective Date. Section 2 of this Amendment shall become effective (the "Second Amendment Effective Date") when Agent receives evidence, in form and substance satisfactory to Agent, that all the conditions to effectiveness set forth in Section 5 below have been met which may be delivered at Borrower's discretion; provided that Borrower shall deliver all the conditions to effectiveness set forth in Section 5 below within one Business Day of the effectiveness of that certain Asset Purchase Agreement, dated as of March 25, 2022, by and among Borrower and Jazz Pharmaceuticals PLC with terms and conditions substantially consistent with those represented to Lender as of the date hereof (the "Project Light Agreement").

SECTION 5 Conditions to Section 2 Effective Date. Section 2 of this Amendment shall be subject to Agent's receipt of each of the following documents, in form and substance satisfactory to Agent, or, as applicable, each of the following conditions being met:

(a) Agent's receipt of Warrants for each Lender, dated the Second Amendment Effective Date, in form and substance satisfactory to Agent with respect to this Amendment (the "Tranche 1B Warrants");

(b) a duly executed certificate of an officer of Borrower certifying and attaching copies of (A) the Charter, certified as of a recent date by the jurisdiction of organization of Borrower and as in effect as of the Second Amendment Effective Date; (B) the bylaws of Borrower, as in effect as of the Second Amendment Effective Date; (C) resolutions of Borrower's board of directors evidencing approval of this Amendment, the Tranche 1B Warrants and the Advance to be made on the Second Amendment Effective Date, as such resolutions remain in full force and effect as of the Second Amendment Effective Date; and (D) a schedule setting forth the name, title and specimen signature of officers or other authorized signers on behalf of Borrower;

(c) a certificate of good standing for Borrower from its jurisdiction of organization;

(d) evidence, satisfactory to Agent in its sole discretion of the effectiveness of the Project Light Agreement;

(e) a perfection certificate, executed by Borrower, in form and substance reasonably satisfactory to Agent;

(f) a legal opinion of Borrower's counsel in form and substance reasonably acceptable to Agent;

(g) such other documents as Agent may reasonably request;

(h) a California law governed Joinder Agreement, executed by Axsome Malta Ltd., a limited company organized under the laws of Malta (the "Malta Subsidiary") and Agent, in form and substance reasonably acceptable to Agent;

(i) a California law governed Joinder Agreement, executed by Axsome International Holdings LLC and Agent, in form and substance reasonably acceptable to Agent;

(j) a California law governed Amended and Restated Pledge Agreement, executed by Borrower, Axsome International Holdings LLC and Agent, in form and substance reasonably acceptable to Agent;

(k) Borrower shall have issued and sold to Agent, between \$5,000,000 and \$8,000,000 of the Borrower's common stock, at a share price equal to the lesser of (a) the three-day volume weighted average price as of the date hereof or (b) the three-day volume weighted average price as of the Second Amendment Effective Date pursuant to that certain Stock Purchase Agreement, dated the Second Amendment Effective Date, by and between the Borrower and Agent; provided that in no case shall the share price be less than a 20% discount to the three-day volume weighted average price of Borrower's common stock at the time of the purchase;

(l) On the Second Amendment Effective Date, after giving effect to the amendment of the Existing Loan Agreement contemplated hereby: (i) the representations and warranties contained in Section 6 shall be true and correct

on and as of the Second Amendment Effective Date as though made on and as of such date; and (ii) there exist no Events of Default or events that with the passage of time would result in an Event of Default; and

(m) Borrower shall have paid (i) all invoiced costs and expenses then due in accordance with Section 8(e), and (ii) all other fees, costs and expenses, if any, due and payable as of the Second Amendment Effective Date under the Loan Agreement.

SECTION 6 Representations and Warranties. To induce Agent and Lender to enter into this Amendment, Borrower hereby confirms, as of the date hereof, (a) that the representations and warranties made by it in Section 5 of the Loan Agreement and in the other Loan Documents are true and correct in all material respects; *provided, however*, that such materiality qualifier shall not be applicable to any representations and warranties that already are qualified or modified by materiality in the text thereof and that any representations and warranties made as of a specific date are only true and correct in all material respects as of such date, and that no Event of Default has occurred and is continuing, (b) that no event that has had or could reasonably be expected to have a Material Adverse Effect has occurred and is continuing and Borrower is not aware of any event likely to occur that is reasonably expected to result in a Material Adverse Effect; (c) that the information included in the Perfection Certificate delivered to Agent on the date hereof is true and correct; (d) Lenders have and shall continue to have valid, enforceable and perfected first-priority liens, subject only to Permitted Liens, on and security interests in the Collateral and all other collateral heretofore granted by Borrower to Lenders, pursuant to the Loan Documents or otherwise granted to or held by Lenders; (e) the agreements and obligations of Borrower contained in the Loan Documents and in this Amendment constitute the legal, valid and binding obligations of Borrower, enforceable against Borrower in accordance with their respective terms, except as the enforceability thereof may be limited by bankruptcy, insolvency or other similar laws of general application affecting the enforcement of creditors' rights or by the application of general principles of equity; and (f) the execution, delivery and performance of this Amendment by Borrower will not violate any law, rule, regulation, order, contractual obligation or organizational document of Borrower and will not result in, or require, the creation or imposition of any lien, claim or encumbrance of any kind on any of its properties or revenues. For the purposes of this Section 6, each reference in Section 5 of the Loan Agreement to "this Agreement," and the words "hereof," "herein," "hereunder," or words of like import in such Section, shall mean and be a reference to the Loan Agreement as amended by this Amendment.

SECTION 7 Post-Closing. Notwithstanding any provision herein or in the Loan Documents to the contrary, to the extent not actually delivered on or prior to the Second Amendment Effective Date, Borrower shall deliver to Agent:

(a) Within forty-five (45) days of the Second Amendment Effective Date, (i) a Maltese debenture or security agreement granting a lien in substantially all of the assets of the Malta Subsidiary, (ii) a Maltese law governed bank account pledge agreement in favor of Agent, as applicable, (iii) a Maltese law governed receivables pledge agreement in favor of Agent, as applicable, (iv) a Maltese law governed intellectual property pledge agreement in favor of Agent, as applicable, (v) a customary legal opinion of local Malta counsel for the Malta Subsidiary and (vi) such other documentation relating to such categories of assets as the Borrower and Agent may reasonably agree, in each case, in form and substance satisfactory to Agent in its sole discretion.

SECTION 8 Miscellaneous.

(a) **Loan Documents Otherwise Not Affected; Reaffirmation.**

(i) Except as expressly amended pursuant hereto or referenced herein, the Loan Agreement and the other Loan Documents shall remain unchanged and in full force and effect and are hereby ratified and confirmed in all respects. Lender's and Agent's execution and delivery of, or acceptance of, this Amendment shall not be deemed to create a course of dealing or otherwise create any express or implied duty by any of them to provide any other or further amendments, consents or waivers in the future.

(ii) Borrower hereby expressly (1) reaffirms, ratifies and confirms all Secured Obligations under the Loan Agreement and the other Loan Documents, (2) reaffirms, ratifies and confirms the grant of security under Section 3.1 of the Loan Agreement, (3) reaffirms that such grant of security in the Collateral secures all Secured Obligations under the Loan Agreement, and with effect from (and including) the Second Amendment Effective Date, such grant

of security in the Collateral: (x) remains in full force and effect notwithstanding the amendments expressly referenced herein; and (y) secures all Secured Obligations under the Loan Agreement, as amended by this Amendment, and the other Loan Documents, (4) agrees that this Amendment shall be a "Loan Document" under the Loan Agreement and (5) agrees that the Loan Agreement and each other Loan Document shall remain in full force and effect following any action contemplated in connection herewith.

(iii) This Amendment is not a novation and the terms and conditions of this Amendment shall be in addition to and supplemental to all terms and conditions set forth in the Loan Documents. Nothing in this Amendment is intended, or shall be construed, to constitute an accord and satisfaction of Borrower's Secured Obligations under or in connection with the Loan Agreement and any other Loan Document or to modify, affect or impair the perfection or continuity of Agent's security interest in, (on behalf of itself and the Lenders) security titles to or other liens on any Collateral for the Secured Obligations.

(b) **Conditions.** For purposes of determining compliance with the conditions specified in Section 5, each Lender that has signed this Amendment shall be deemed to have consented to, approved or accepted or to be satisfied with, each document or other matter required thereunder to be consented to or approved by or acceptable or satisfactory to a Lender unless Agent shall have received notice from such Lender prior to the Second Amendment Effective Date specifying its objection thereto.

(c) **Release.** In consideration of the agreements of Agent and each Lender contained herein and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Borrower, on behalf of itself and its successors, assigns, and other legal representatives, hereby fully, absolutely, unconditionally and irrevocably releases, remises and forever discharges Agent and each Lender, and its successors and assigns, and its present and former shareholders, affiliates, subsidiaries, divisions, predecessors, directors, officers, attorneys, employees, agents and other representatives (Agent, Lenders and all such other persons being hereinafter referred to collectively as the "Releasees" and individually as a "Releasee"), of and from all demands, actions, causes of action, suits, covenants, contracts, controversies, agreements, promises, sums of money, accounts, bills, reckonings, damages and any and all other claims, counterclaims, defenses, rights of set-off, demands and liabilities whatsoever of every name and nature, both at law and in equity, to the extent Borrower has actual knowledge as of the date hereof that it owns, holds, has or claims to have against the Releasees or any of them for, upon, or by reason of any circumstance, action, cause or thing whatsoever which arises at any time on or prior to the day and date of this Amendment, including, without limitation, for or on account of, or in relation to, or in any way in connection with the Loan Agreement, or any of the other Loan Documents or transactions thereunder or related thereto.

Borrower understands, acknowledges and agrees that the release set forth above may be pleaded as a full and complete defense and may be used as a basis for an injunction against any action, suit or other proceeding which may be instituted, prosecuted or attempted in breach of the provisions of such release. Borrower agrees that no fact, event, circumstance, evidence or transaction which Borrower has actual knowledge of could now be asserted or shall affect in any manner the final, absolute and unconditional nature of the release set forth above. The provisions of this section shall survive payment in full of the Secured Obligations, full performance of all the terms of this Amendment and the other Loan Documents.

(d) **No Reliance.** Borrower hereby acknowledges and confirms to Agent and Lenders that Borrower is executing this Amendment on the basis of its own investigation and for its own reasons without reliance upon any agreement, representation, understanding or communication by or on behalf of any other Person.

(e) **Costs and Expenses.** Borrower agrees to pay to Agent on the date hereof the reasonable out-of-pocket costs and expenses of Agent and Lender party hereto, and the fees and disbursements of counsel to Agent and Lender party hereto in connection with the negotiation, preparation, execution and delivery of this Amendment and any other documents to be delivered in connection herewith on the Second Amendment Effective Date.

(f) **Binding Effect.** This Amendment binds and is for the benefit of the successors and permitted assigns of each party.

(g) **Governing Law.** THIS AMENDMENT AND THE RIGHTS AND OBLIGATIONS OF THE PARTIES HEREUNDER SHALL IN ALL RESPECTS BE GOVERNED BY AND CONSTRUED IN ACCORDANCE WITH,

THE INTERNAL LAWS OF THE STATE OF CALIFORNIA (WITHOUT REGARD TO THE CONFLICT OF LAWS PRINCIPLES THAT WOULD RESULT IN the application of ANY laws OTHER THAN THE LAWS OF THE STATE OF CALIFORNIA), INCLUDING ALL MATTERS OF CONSTRUCTION, VALIDITY AND PERFORMANCE, REGARDLESS OF THE LOCATION OF THE COLLATERAL.

(h) **Complete Agreement; Amendments.** This Amendment and the Loan Documents represent the entire agreement about this subject matter and supersede prior negotiations or agreements with respect to such subject matter. All prior agreements, understandings, representations, warranties, and negotiations between the parties about the subject matter of this Amendment and the Loan Documents merge into this Amendment and the Loan Documents.

(i) **Severability of Provisions.** Each provision of this Amendment is severable from every other provision in determining the enforceability of any provision.

(j) **Counterparts.** This Amendment may be executed in any number of counterparts and by different parties on separate counterparts, each of which, when executed and delivered, is an original, and all taken together, constitute one Amendment. Delivery of an executed counterpart of a signature page of this Amendment by facsimile, portable document format (.pdf) or other electronic transmission will be as effective as delivery of a manually executed counterpart hereof.

(k) **Loan Documents.** This Amendment and the documents related thereto shall constitute a Loan Document.

(l) **Electronic Execution of Certain Other Documents.** The words “execution,” “execute,” “signed,” “signature,” and words of like import in or related to any document to be signed in connection with this Amendment and the transactions contemplated hereby (including without limitation assignments, assumptions, amendments, waivers and consents) shall be deemed to include electronic signatures, the electronic matching of assignment terms and contract formations on electronic platforms approved by the Collateral Agent, or the keeping of records in electronic form, each of which shall be of the same legal effect, validity or enforceability as a manually executed signature or the use of a paper-based recordkeeping system, as the case may be, to the extent and as provided for in any applicable law, including the Federal Electronic Signatures in Global and National Commerce Act, the California Uniform Electronic Transactions Act, or any other similar state laws based on the Uniform Electronic Transactions Act.

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IN WITNESS WHEREOF, the parties hereto have duly executed this Amendment, as of the date first above written.

BORROWER:

AXSOME THERAPEUTICS, INC.

Signature: /s/ Herriot Tabuteau, M.D.

Print Name: Herriot Tabuteau, M.D.

Title: President and Chief Executive Officer

[SIGNATURES CONTINUE ON THE NEXT PAGE]

[Signature Page to Second Amendment to Loan and Security Agreement]

AGENT:

HERCULES CAPITAL, INC.

Signature: /s/ Seth Meyer

Print Name: Seth Meyer

Title: Chief Financial Officer

LENDER:

HERCULES CAPITAL, INC.

Signature: /s/ Seth Meyer

Print Name: Seth Meyer

Title: Chief Financial Officer

HERCULES PRIVATE CREDIT FUND I L.P.

By: Hercules Private Global Venture Growth Fund GP I LLC, its general partner

By: Hercules Adviser LLC, its sole member

Signature: /s/ Seth Meyer

Print Name: Seth Meyer

Title: Authorized Signatory

[Signature Page to Second Amendment to Loan and Security Agreement]

HERCULES PRIVATE GLOBAL VENTURE GROWTH FUND I L.P.

By: Hercules Private Global Venture Growth Fund GP I LLC, its general partner

By: Hercules Adviser LLC, its sole member

Signature: /s/ Seth Meyer

Print Name: Seth Meyer

Title: Authorized Signatory

[Signature Page to Second Amendment to Loan and Security Agreement]

EXHIBIT A

(See Attached)

EXHIBIT B

[Exhibit B intentionally omitted. It is not material and would be competitively harmful if publicly disclosed.]

LOAN AND SECURITY AGREEMENT

THIS LOAN AND SECURITY AGREEMENT is made and dated as of September 25, 2020 and is entered into by and among AXSOME THERAPEUTICS, INC., a Delaware corporation, and each of its Subsidiaries other than Excluded Subsidiaries (individually and collectively referred to as the "Borrower"), the several banks and other financial institutions or entities from time to time parties to this Agreement (collectively, referred to as the "Lenders") and HERCULES CAPITAL, INC., a Maryland corporation, in its capacity as administrative agent and collateral agent for itself and the Lenders (in such capacity, the "Agent").

RECITALS

- A. Borrower has requested the Lenders make available to Borrower a loan in an aggregate principal amount of up to Three Hundred Million Dollars (\$300,000,000) (the "Term Loan"); and
- B. The Lenders are willing to make the Term Loan on the terms and conditions set forth in this Agreement.

AGREEMENT

NOW, THEREFORE, Borrower, Agent and the Lenders agree as follows:

1. DEFINITIONS AND RULES OF CONSTRUCTION

- a. Unless otherwise defined herein, the following capitalized terms shall have the following meanings:

"Account Control Agreement(s)" means any agreement entered into by and among the Agent, Borrower and a third party bank or other institution (including a Securities Intermediary) in which Borrower maintains a Deposit Account or an account holding Investment Property and which perfects Agent's first priority security interest in the subject account or accounts.

"ACH Authorization" means the ACH Debit Authorization Agreement in substantially the form of Exhibit H, which account numbers shall be redacted for security purposes if and when filed publicly by the Borrower.

"ACH Failure" means the failure of the Automated Clearing House (ACH) system to effect a transfer of funds requested by Lender to be used to satisfy all or part of Borrower's obligations to pay principal and interest due hereunder, unless any such failure results from insufficient funds in Borrower's account(s).

"Acquisition" means any transaction or series of related transactions for the purpose of or resulting, directly or indirectly, in (a) the acquisition of all or substantially all of the assets of

a Person, or any division, line of business or other business unit of another Person, (b) the acquisition of fifty percent (50%) or more of the Equity Interests of any Person, whether or not involving a merger, consolidation or similar transaction with such other Person, or otherwise causing any Person to become a Subsidiary of Borrower, or (c) the acquisition of, or the right to use, develop or sell (in each case, including through licensing), any product that would constitute a Borrower Product upon acquisition.

“Acquisition Deferred Payments” means, with respect to an Acquisition, any “earnouts,” holdbacks, performance based-milestones, royalties, purchase price adjustments, profit sharing arrangements, deferred purchase money amounts, indemnifications, non-competition agreements, incentive payments, and other similar payment obligations, and other contingent obligations and agreements consisting of the adjustment of purchase price or similar adjustments.

“Advance(s)” means a Term Loan Advance.

“Advance Date” means the funding date of any Advance.

“Advance Request” means a request for an Advance submitted by Borrower to Agent in substantially the form of Exhibit A, which account numbers shall be redacted for security purposes if and when filed publicly by the Borrower.

“Affiliate” means with respect to any Person (a) any Person that directly or indirectly controls, is controlled by, or is under common control with such Person, (b) any Person directly or indirectly owning, controlling or holding with power to vote ten percent (10%) or more of the outstanding voting securities of such Person, and (c) any Person ten percent (10%) or more of whose outstanding voting securities are directly or indirectly owned, controlled or held by such Person with power to vote such securities. As used in the definition of “Affiliate,” the term “control” means the possession, directly or indirectly, of the power to direct or cause the direction of the management and policies of a Person, whether through ownership of voting securities, by contract or otherwise.

“Agreement” means this Loan and Security Agreement, as amended from time to time.

“Amortization Date” means November 1, 2025; provided however, (x) if the First Interest Only Extension Conditions are satisfied, then May 1, 2026, and (y) if the Second Interest Only Extension Conditions are satisfied, then November 1, 2026.

“Antecip License Agreement” means that certain License Agreement, dated as of April 17, 2012 by and between Borrower and Antecip Bioventures II LLC, as amended by the First Amendment to License Agreement dated as of August 21, 2015, as amended by the Antecip Direct Agreement and as may be further amended from time to time pursuant to terms of the Antecip Direct Agreement.

“Antecip Direct Agreement” means that certain Direct Agreement dated as of the date hereof, by and among the Company, Antecip Bioventures II LLC and the Agent (as amended, supplemented or otherwise modified from time to time).

“Anti-Corruption Laws” means all laws, rules, and regulations of any jurisdiction applicable to Borrower or any of its Affiliates from time to time concerning or relating to bribery or corruption, including without limitation the United States Foreign Corrupt Practices Act of 1977, as amended, the UK Bribery Act 2010 and other similar legislation in any other jurisdictions.

“Anti-Terrorism Laws” means any laws, rules, regulations or orders relating to terrorism or money laundering, including without limitation Executive Order No. 13224 (effective September 24, 2001), the USA PATRIOT Act, the laws comprising or implementing the Bank Secrecy Act, and the laws administered by OFAC.

“Australian Subsidiary” means Axsome Therapeutics Australia Pty Ltd, a company organized under the laws of Australia.

“AXS-05” means Borrower’s AXS-05 product candidate (bupropion and dextromethorphan) for the treatment of Major Depressive Disorder (MDD) and other indications.

“AXS-05 Milestone” means Borrower shall have provided evidence reasonably satisfactory to Agent that the FDA has approved Borrower’s New Drug Application for AXS-05 for the treatment of MDD with a label claim that is generally consistent with that sought in Borrower’s New Drug Application filing.

“AXS-05 Milestone Date” means the date on which the Borrower achieves the AXS-05 Milestone.

“AXS-07” means Borrower’s AXS-07 product candidate (MoSEIC meloxicam and rizatriptan) for the acute treatment of migraine.

“AXS-07 Milestone” means Borrower shall have provided evidence reasonably satisfactory to Agent that the FDA has approved Borrower’s New Drug Application for AXS-07 for the acute treatment of migraine with a label claim that is generally consistent with that sought in Borrower’s New Drug Application filing.

“AXS-07 Milestone Date” means the date on which the Borrower achieves the AXS-07 Milestone.

“AXS-12” means Borrower’s AXS-12 product candidate (reboxetine) for the treatment of narcolepsy.

“AXS-14” means Borrower’s AXS-14 product candidate (esreboxetine) for the treatment of fibromyalgia.

“Blocked Person” means any Person: (a) listed in the annex to, or is otherwise subject to the provisions of, Executive Order No. 13224, (b) a Person owned or controlled by, or acting for or on behalf of, any Person that is listed in the annex to, or is otherwise subject to the provisions of, Executive Order No. 13224, (c) a Person with which any Lender is prohibited from dealing or otherwise engaging in any transaction by any Anti-Terrorism Law, (d) a Person that commits, threatens or conspires to commit or supports “terrorism” as defined in Executive Order

No. 13224, or (e) a Person that is named a “specially designated national” or “blocked person” on the most current list published by OFAC or other similar list.

“Borrower Products” means all products currently being designed, manufactured or that are under preclinical or clinical investigation or development by Borrower or which Borrower intends to sell, license, or distribute in the future subject to applicable regulatory approvals including any products under development, collectively, together with all products that have been sold, licensed or distributed by Borrower since its incorporation.

“Borrower’s Books” means Borrower’s or any of its Subsidiaries’ books and records including ledgers, federal, state, local and foreign tax returns, records regarding Borrower’s or its Subsidiaries’ assets or liabilities, the Collateral, business operations or financial condition, and all computer programs or storage or any equipment containing such information.

“Business Day” means any day other than Saturday, Sunday and any other day on which banking institutions in the State of California are closed for business.

“Cash” means all cash, cash equivalents and liquid funds.

“Change in Control” means any (x) reorganization, recapitalization, consolidation or merger (or similar transaction or series of related transactions) of Borrower, sale or exchange of outstanding shares (or similar transaction or series of related transactions) of Borrower in which the holders of Borrower’s outstanding shares immediately before consummation of such transaction or series of related transactions do not, immediately after consummation of such transaction or series of related transactions, retain shares representing more than fifty percent (50%) of the voting power of the surviving entity of such transaction or series of related transactions (or the parent of such surviving entity if such surviving entity is wholly owned by such parent), in each case without regard to whether Borrower is the surviving entity or (y) “change of control”, “fundamental change”, “make-whole fundamental change” or any comparable term under and as defined in any indenture governing any Permitted Convertible Debt has occurred.

“Closing Date” means the date of this Agreement.

“Code” means the Internal Revenue Code of 1986, as amended.

“Common Stock” means the Common Stock, \$0.0001 par value per share, of the Borrower.

“Company IP” means any and all of the following, as they exist in and throughout the United States: (a) Current Company IP; (b) improvements, continuations, continuations-in-part, divisions, provisionals or any substitute applications, any patent issued with respect to any of the Current Company IP, any patent right claiming the composition of matter of, or the method of making or using, the Borrower Products in the United States, any reissue, reexamination, renewal or patent term extension or adjustment (including any supplementary protection certificate) of any such patent, and any confirmation patent or registration patent or patent of addition based on any such patent; (c) trade secrets or trade secret rights, including any rights to unpatented inventions, know-how, show-how, operating manuals, confidential or proprietary information, research in progress, algorithms, data, databases, data collections, designs, processes, procedures, methods,

protocols, materials, formulae, drawings, schematics, blueprints, flow charts, models, strategies, prototypes, techniques, and the results of experimentation and testing, including samples, in each case, as specifically related to any research, development, manufacture, production, use, commercialization, marketing, importing, storage, transport, offer for sale, distribution or sale of the Borrower Products; (d) any and all IP Ancillary Rights specifically relating to any of the foregoing; and (e) regulatory filings, submissions and approvals related to any research, development, manufacture, production, use, commercialization, marketing, importing, storage, transport, offer for sale, distribution or sale of the Borrower Products and all data provided in any of the foregoing.

“Contingent Obligation” means, as applied to any Person, any direct or indirect liability, contingent or otherwise, of that Person with respect to (i) any Indebtedness, lease, dividend, letter of credit or other obligation of another, including any such obligation directly or indirectly guaranteed, endorsed, co-made or discounted or sold with recourse by that Person, or in respect of which that Person is otherwise directly or indirectly liable; (ii) any obligations with respect to undrawn letters of credit, corporate credit cards or merchant services issued for the account of that Person; and (iii) all obligations arising under any interest rate, currency or commodity swap agreement, interest rate cap agreement, interest rate collar agreement, or other agreement or arrangement designated to protect a Person against fluctuation in interest rates, currency exchange rates or commodity prices; provided, however, that the term “Contingent Obligation” shall not include endorsements for collection or deposit in the ordinary course of business or guaranties of operating leases that do not constitute Indebtedness. The amount of any Contingent Obligation shall be deemed to be an amount equal to the stated or determined amount of the primary obligation in respect of which such Contingent Obligation is made or, if not stated or determinable, the maximum reasonably anticipated liability in respect thereof as determined by such Person in good faith; provided, however, that such amount shall not in any event exceed the maximum amount of the obligations under the guarantee or other support arrangement. For the avoidance of doubt, no Permitted Bond Hedge Transaction or Permitted Warrant Transaction will be considered a Contingent Obligation of Borrower.

“Copyright License” means any written agreement granting any right to use any Copyright or Copyright registration, now owned or hereafter acquired by Borrower or in which Borrower now holds or hereafter acquires any interest.

“Copyrights” means all copyrights, whether registered or unregistered, held pursuant to the laws of the United States of America, any State thereof, or of any other country.

“Cross-Default Reference Obligation” has the meaning assigned to such term in the definition of “Permitted Convertible Debt.”

“Deposit Accounts” means any “deposit accounts,” as such term is defined in the UCC, and includes any checking account, savings account, or certificate of deposit.

“Domestic Subsidiary” means any Subsidiary organized under the laws of the United States of America, any State thereof, the District of Columbia, or any other jurisdiction within the United States of America.

“Due Diligence Fee” means \$75,000, which fee has been paid to the Lenders prior to the Closing Date, and shall be deemed fully earned on such date regardless of the early termination of this Agreement.

“Equity Interests” means, with respect to any Person, the capital stock, partnership or limited liability company interest, or other equity securities or equity ownership interests of such Person.

“ERISA” means the Employee Retirement Income Security Act of 1974, as amended, and the regulations promulgated thereunder.

“Excluded Account” means (i) accounts used solely to fund payroll or employee benefits in an aggregate amount not to exceed the then-next two payroll cycles, (ii) any Account (including, for the avoidance of doubt, any cash, cash equivalents, or other property contained therein) to the extent, and for so long as, such Account is pledged and used exclusively to secure performance of obligations arising and permitted under clauses (vi), (xiv) and (xv) of the definition of “Permitted Liens” and (iii) other Accounts that have a balance not to exceed One Hundred Thousand Dollars (\$100,000.00) in the aggregate at any time.

“Excluded Subsidiary” means (a) the Irish Subsidiary, (b) the Australian Subsidiary, and (c) each Foreign Subsidiary of Borrower designated by Borrower as an “Excluded Subsidiary”; provided that, in each of the foregoing cases, the Excluded Subsidiary Condition is satisfied with respect to such Subsidiary at all times, and in each case as long as no Excluded Subsidiary owns any Intellectual Property.

“Excluded Subsidiary Condition” means (a) the aggregate revenues (under GAAP) of all Excluded Subsidiaries does not exceed five percent (5%) of the consolidated revenues (under GAAP) of Borrower and its Subsidiaries; and (b) value of the total assets of all Excluded Subsidiaries does not exceed five percent (5%) of the consolidated total assets of Borrower and its Subsidiaries.

1. “FDA” means the U.S. Food and Drug Administration or any successor thereto.

2. “FDA Good Manufacturing Practices” means the applicable requirements and standards set forth in the Food, Drug, and Cosmetic Act (“FDCA”) and its implementing regulations (for example, for pharmaceuticals being used in Phase 2 or 3 studies, and commercial pharmaceuticals, 21 C.F.R. Parts 210 and 211) and relevant FDA guidance documents (for example, for pharmaceuticals in Phase 1, FDA guidance entitled “CGMP for Phase 1 Investigational Drugs”).

3. “FDA Laws” means all applicable statutes, rules, regulations, standards, guidelines, policies and orders and Requirements of Law administered, implemented, enforced or issued by FDA or any comparable governmental authority.

4. “Federal Health Care Program Laws” means collectively, federal Medicare or federal or state Medicaid statutes, Sections 1128, 1128A, 1128B, 1128C or 1877 of the Social Security Act (42 U.S.C. §§ 1320a-7, 1320a-7a, 1320a-7b, 1320a-7c, 1320a-7h and 1395nn), the

federal TRICARE statute (10 U.S.C. § 1071 et seq.), the civil False Claims Act of 1863 (31 U.S.C. § 3729 et seq.), criminal false claims statutes (e.g., 18 U.S.C. §§ 287 and 1001), the Program Fraud Civil Remedies Act of 1986 (31 U.S.C. § 3801 et seq.), HIPAA, or related regulations or other Requirements of Law that directly or indirectly govern the health care industry, programs of governmental authorities related to healthcare, health care professionals or other health care participants, or relationships among health care providers, suppliers, distributors, manufacturers and patients, and the pricing, sale and reimbursement of health care items or services including the collection and reporting requirements, and the processing of any applicable rebate, chargeback or adjustment, under applicable rules and regulations relating to the Medicaid Drug Rebate Program (42 U.S.C. § 1396r-8) and any state supplemental rebate program, Medicare average sales price reporting (42 U.S.C. § 1395w-3a), the Public Health Service Act (42 U.S.C. § 256b), the VA Federal Supply Schedule (38 U.S.C. § 8126) or under any state pharmaceutical assistance program or U.S. Department of Veterans Affairs agreement, and any successor government programs.

“First Amendment Closing Date” means October 14, 2021.

5. “First Interest Only Extension Conditions” shall mean satisfaction of each of the following events: (a) no default or Event of Default shall have occurred and be continuing; and (b) either the AXS-05 Milestone or the AXS-07 Milestone have been achieved on or prior to October 31, 2025.

6. “Forecast” means the projections for Borrower as delivered and accepted by Agent on or before the Second Amendment Closing Date; provided however, that Borrower may from time to time update the Forecast with a forecast approved by the board of directors of the Borrower, subject to the consent of Agent in its reasonable discretion; provided, further that, it is acknowledged that the Forecast is premised on, among other things, certain assumptions about (i) the effectiveness of the Project Light Agreement and (ii) possible timing of a launch date for AXS-05 and AXS-07 and to the extent the assumed launch dates are deferred or delayed, then, for purposes of this Agreement and the other Loan Documents, the Forecast shall be deemed to be automatically updated and revised to defer the expected dates for receipt or recognition of revenues from AXS-05 and AXS-07, as applicable, by the same amount of time as the deferral or delay of the actual launch dates; provided, further that the Forecast must be updated prior to December 31, 2023 to include projections for 2024 and beyond based on a forecast approved by the board of directors demonstrating reasonable growth rates.

7. “Foreign Subsidiary” means any Subsidiary other than a Domestic Subsidiary.

“GAAP” means generally accepted accounting principles in the United States of America, as in effect from time to time.

“Hedge Agreement” means any interest rate, currency or commodity swap agreement, interest rate cap agreement, interest rate collar agreement, fuel or mineral or other commodity hedge or exchange agreement or any other agreement or arrangement entered into for non-speculative purposes designated to protect a Person against fluctuation in interest rates, currency exchange rates, commodity or mineral prices.

“Indebtedness” means (a) all indebtedness for borrowed money or the deferred purchase price of property or services (excluding trade credit entered into in the ordinary course of business not past due for more than one hundred eighty (180) days), including reimbursement and other obligations with respect to surety bonds and letters of credit, (b) all obligations evidenced by notes, bonds, debentures or similar instruments, (c) all capital lease obligations, (d) equity securities of any Person subject to repurchase or redemption other than at the sole option of such Person, (e) non-contingent “earnouts”, purchase price adjustments, profit sharing arrangements, deferred purchase money amounts and similar payment obligations arising out of purchase and sale contracts but only as and to the extent of the amount required to be reflected as a liability on the balance sheet of such Person in accordance with GAAP, (f) non-contingent obligations to reimburse any bank or Person in respect of amounts paid under a letter of credit, banker’s acceptance or similar instrument, and (g) all Contingent Obligations. For the avoidance of doubt no Permitted Bond Hedge Transaction or Permitted Warrant Transaction shall be considered Indebtedness of the Borrower.

8. “Initial Facility Charge” means \$737,500, which is payable to the Lenders in accordance with Section 4.1(f).

“Initial Performance Covenant Test Date” means the last calendar month of the calendar quarter that is nine months following the earlier of (i) the AXS-05 Milestone Date, (ii) the AXS-07 Milestone Date, or (iii) the Final Closing Date (as defined in the Project Light Agreement).

“Insolvency Proceeding” means any proceeding by or against any Person under the United States Bankruptcy Code, or any other bankruptcy or insolvency law, including assignments for the benefit of creditors, compositions, extensions generally with its creditors, or proceedings seeking reorganization, arrangement, or other similar relief.

“Intellectual Property” means all of Borrower’s Copyrights; Trademarks; Patents; Licenses; trade secrets and inventions; mask works; Borrower’s applications therefor and reissues, extensions, or renewals thereof; and Borrower’s goodwill associated with any of the foregoing, together with Borrower’s rights to sue for past, present and future infringement of Intellectual Property and the goodwill associated therewith.

“Intellectual Property Security Agreement” means the Intellectual Property Security Agreement dated as of the Closing Date between the Borrower and Agent, as the same may from time to time be amended, restated, modified or otherwise supplemented.

“Investment” means (a) any beneficial ownership (including stock, partnership, limited liability company interests, or other securities) of or in any Person, (b) any loan, advance or capital contribution to any Person or (c) any Acquisition.

“IP Ancillary Rights” means, with respect to any Copyright, Trademark, Patent, software, trade secrets or trade secret rights, including any rights to unpatented inventions, know-how, show-how and operating manuals, all income, royalties, proceeds and liabilities at any time due or payable or asserted under or with respect to any of the foregoing or otherwise with respect thereto, including all rights to sue or recover at law or in equity for any past, present or future

infringement, misappropriation, dilution, violation or other impairment thereof, and, in each case, all rights to obtain any other intellectual property right ancillary to any Copyright, Trademark, Patent, software, trade secrets or trade secret rights.

“Irish Subsidiary” is Axsome Therapeutics Limited, a company organized under the laws of Ireland.

“IRS” means the United States Internal Revenue Service.

“Joinder Agreements” means for each Subsidiary (other than an Excluded Subsidiary), a completed and executed Joinder Agreement in substantially the form attached hereto as Exhibit F.

“License” means any Copyright License, Patent License, Trademark License or other license of rights or interests.

“Lien” means any mortgage, deed of trust, pledge, hypothecation, assignment for security, security interest, encumbrance, levy, lien or charge of any kind, whether voluntarily incurred or arising by operation of law or otherwise, against any property, any conditional sale or other title retention agreement, and any lease in the nature of a security interest.

“Loan” means the Advances made under this Agreement.

“Loan Documents” means this Agreement, the promissory notes (if any), the ACH Authorization, the Account Control Agreements, the Joinder Agreements, all UCC Financing Statements, the Warrant, the Pledge Agreement, the Intellectual Property Security Agreement, the Antecip Direct Agreement, and any other documents executed in connection with the Secured Obligations or the transactions contemplated hereby, as the same may from time to time be amended, modified, supplemented or restated.

“Malta Subsidiary” is Axsome Malta Ltd., a company organized under the laws of the Republic of Malta.

“Market Capitalization” means, as of any date of determination, the product of (a) the number of outstanding shares of Common Stock publicly disclosed in the most recent filing of Borrower with the United States Securities Exchange Commission as outstanding as of such date of determination and (b) the closing price of Borrower’s Common Stock (as quoted on Bloomberg L.P.’s page or any successor page thereto of Bloomberg L.P. or if such page is not available, any other commercially available source).

“Material Adverse Effect” means a material adverse effect upon: (i) the business, operations, properties, assets or financial condition of Borrower and its Subsidiaries taken as a whole; or (ii) the ability of Borrower to perform or pay the Secured Obligations in accordance with the terms of the Loan Documents, or the ability of Agent or the Lenders to enforce any of its rights or remedies with respect to the Secured Obligations; or (iii) the Collateral or Agent’s Liens on the Collateral or the priority of such Liens.

“Material Agreement” means (a) the Antecip License Agreement, (b) that certain license agreement dated as of January 10, 2020 by and between Borrower and Pfizer, Inc., (c) the Project Light Agreement and (d) any other license, agreement or other contractual arrangement whereby Borrower or any of its Subsidiaries is required to transfer, either in-kind or in cash, prior to the Term Loan Maturity Date, assets or property valued (book or market) at more than Ten Million Dollars (\$10,000,000.00) in the aggregate.

“Material Regulatory Liabilities” means (a)(i) any liabilities arising from the violation of Public Health Laws, Federal Health Care Program Laws, and other applicable comparable Requirements of Law, or from any non-routing terms, conditions of or requirements imposed relative to any Registrations (including costs of actions required under applicable Requirements of Law, including FDA Laws and Federal Health Care Program Laws, or necessary to remedy any violation of any terms or conditions applicable to any Registrations), including, but not limited to, withdrawal of approval, recall, revocation, suspension, import detention and seizure of any Borrower Product, and (ii) any loss of recurring annual revenues as a result of any loss, suspension or limitation of any Registrations, which, in the case of the foregoing clauses (i) and (ii), exceed \$2,000,000 individually or in the aggregate, or (b) any Material Adverse Effect.

“Maturity Extension Conditions” means (i) the Borrower achieves T6M Net Product Revenue of at least 60% of the T6M Net Product Revenue included in the Forecast and (ii) the Borrower notifies the Agent in writing of its desire to extend the Term Loan Maturity Date on or within five (5) Business Days of the third anniversary of the First Amendment Closing Date.

“Maximum Term Loan Amount” means Three Hundred Million Dollars (\$300,000,000).

“Net Product Revenue Ratio” means, as of any date of determination, the ratio of (a) the outstanding amount of the Term Loan Advances to (b) T3M Net Product Revenue.

9. “New Drug Application” means a new drug application in the United States for authorization to market a product, as defined in the applicable laws and regulations and submitted to the FDA.

“Non-Disclosure Agreement” means that certain Non-Disclosure Agreement by and between Borrower and Agent, dated as of August 11, 2020.

“OFAC” is the U.S. Department of Treasury Office of Foreign Assets Control.

“OFAC Lists” are, collectively, the Specially Designated Nationals and Blocked Persons List maintained by OFAC pursuant to Executive Order No. 13224, 66 Fed. Reg. 49079 (Sept. 25, 2001) and/or any other list of terrorists or other restricted Persons maintained pursuant to any of the rules and regulations of OFAC or pursuant to any other applicable Executive Orders.

“Patent License” means any written agreement granting any right with respect to any invention on which a Patent is in existence or a Patent application is pending, in which agreement Borrower now holds or hereafter acquires any interest.

“Patents” means all letters patent of, or rights corresponding thereto, in the United States of America or in any other country, all registrations and recordings thereof, and all applications for letters patent of, or rights corresponding thereto, in the United States of America or any other country.

“Performance Covenant A” means satisfaction of each of the following at all times: (i) Borrower’s Market Capitalization exceeds One Billion Dollars (\$1,000,000,000) and (ii) Borrower maintains Qualified Cash in an amount not less than fifty percent (50%) of the sum of the outstanding principal amount of the Term Loan Advances *plus* the Qualified Cash A/P Amount.

“Performance Covenant B” means Borrower at all times maintains Qualified Cash in an amount not less than eighty five percent (85%) of the sum of the outstanding principal amount of the Term Loan Advances *plus* the Qualified Cash A/P Amount.

“Performance Covenant C” means Borrower achieves T6M Net Product Revenue of at least 60% of the T6M Net Product Revenue included in the Forecast, determined on a quarterly basis.

“Permitted Acquisition” means: (a) the Acquisition conducted in accordance with the Project Light Agreement and (b) any Acquisition (including by way of merger), in each case located entirely within the United States of America, which is conducted in accordance with the following requirements:

(i) of assets, Equity Interests, businesses, Persons or products engaged in a line of business incidental or related to that of the Borrower or its Subsidiaries or reasonable extensions thereof;

(ii) unless otherwise agreed by Agent in its sole discretion, if such Acquisition is structured as a stock acquisition, then the Person so acquired shall either (i) become a wholly-owned (other than issuance of shares necessary under local law for the qualification of directors) Subsidiary of Borrower or of a Subsidiary and the Borrower shall comply, or cause such Subsidiary to comply, with 7.13 hereof, as applicable, or (ii) such Person shall be merged with and into Borrower (with the Borrower being the surviving entity);

(iii) if such Acquisition is structured as the acquisition or in-licensing of assets, such assets shall be acquired by a Borrower, and shall be free and clear of Liens other than Permitted Liens;

(iv) the Borrower shall have delivered to the Lenders not less than ten (10) days (or such shorter period as Agent may agree in its sole discretion) nor more than forty five (45) days prior to the date of such Acquisition, notice of such Acquisition together with pro forma projected financial information, copies of all material documents relating to such acquisition reasonably requested by Agent, and historical financial statements for such acquired entity (to the extent available), division or line of business, in each case in form reasonably satisfactory to the Lenders and demonstrating compliance with the covenants set forth in Section 7.20 hereof on a pro forma basis as if the Acquisition occurred on the first day of the most recent measurement period;

(v) both immediately before and after such Acquisition no Default or Event of Default shall have occurred and be continuing; and

(vi) the sum of the purchase price of such proposed new Permitted Acquisition (together with all prior Permitted Acquisitions consummated during the term of this Agreement), computed on the basis of total acquisition consideration paid or incurred, or to be paid or incurred, by Borrower with respect thereto (but excluding for such purpose: any unpaid Acquisition Deferred Payments, in each case except to the extent required to be reflected as liabilities on the balance sheet of Borrower), including the amount of Permitted Indebtedness assumed or to which such assets, businesses or business or ownership interest or shares, or any Person so acquired, is subject, shall not be greater than Twenty Five Million Dollars \$25,000,000 *plus* the aggregate amount of Tranche 5 Advances approved by Lenders' investment committee for Acquisitions *minus* the aggregate amount of all Acquisition Deferred Payments that have been paid.

“Permitted Bond Hedge Transaction” means any call or capped call option (or substantively equivalent derivative transaction) relating to the Common Stock (or other securities or property following a merger event or other change of the Common Stock) purchased by Borrower in connection with the issuance of any Permitted Convertible Debt and as may be amended in accordance with its terms; *provided* that, the net purchase price of any such call option transaction, less the amount received by Borrower in respect of any Permitted Warrant Transaction in connection with such issuance of Permitted Convertible Debt, shall not exceed 25% of the gross proceeds to Borrower from such issuance of Permitted Convertible Debt; *provided further* that the terms, conditions and covenants of each such call option transaction are customary for agreements of such type, as determined in good faith by the board of directors of the Borrower or a committee thereof.

10. “Permitted Convertible Debt” means Indebtedness of the Borrower that is convertible into a fixed number (subject to customary anti-dilution adjustments, “make-whole” increases and other customary changes thereto) of shares of Common Stock (or other securities or property following a merger event or other change of the Common Stock), cash or any combination thereof (with the amount of such cash or such combination determined by reference to the market price of such Common Stock or such other securities); *provided* that such Indebtedness shall (a) not require any scheduled amortization or otherwise require payment of principal prior to, or have a scheduled maturity date, earlier than, one hundred eighty (180) days after the Term Loan Maturity Date, (b) be unsecured, (c) not be guaranteed by any Subsidiary of Borrower, (d) contain usual and customary subordination terms for underwritten offerings of senior subordinated convertible notes as determined in good faith by the board of directors of the Borrower or a committee thereof, (e) shall specifically designate this Agreement and all Secured Obligations as “designated senior indebtedness” or similar term so that the subordination terms referred to in clause (d) of this definition specifically refer to such notes as being subordinated to the Secured Obligations pursuant to such subordination terms and (f) be on terms and conditions customary for Indebtedness of such type, as determined in good faith by the board of directors of the Borrower or a committee thereof; *provided further*, that any cross-default or cross-acceleration event of default (each howsoever defined) provision contained therein that relates to indebtedness or other payment obligations of Borrower (or any of its Subsidiaries) (such indebtedness or other payment obligations, a “Cross-Default Reference Obligation”) contains a cure period of at least thirty (30)

calendar days (after written notice to the issuer of such Indebtedness by the trustee or to such issuer and such trustee by holders of at least 25% in aggregate principal amount of such Indebtedness then outstanding) before a default, event of default, acceleration or other event or condition under such Cross-Default Reference Obligation results in an event of default under such cross-default or cross-acceleration provision.

“Permitted Indebtedness” means:

- (i) Indebtedness of Borrower in favor of the Lenders or Agent arising under this Agreement or any other Loan Document;
- (ii) Indebtedness existing on the Closing Date which is disclosed in Schedule 1A;
- (iii) Indebtedness of up to \$500,000 outstanding at any time secured by a Lien described in clause (vii) of the defined term “Permitted Liens,” provided such Indebtedness does not exceed the cost of the Equipment and related software financed with such Indebtedness;
- (iv) Indebtedness to trade creditors incurred in the ordinary course of business (other than any trade credit that is past due for more than one hundred eighty (180) days);
- (v) Indebtedness that also constitutes a Permitted Investment;
- (vi) Subordinated Indebtedness;
- (vii) Indebtedness, including reimbursement obligations, in connection with (A) letters of credit, (B) foreign exchange services, ACH Services, and, cash management services (including credit cards, debit cards and similar instruments) and (C) Hedge Agreements (entered into in order to manage existing or anticipated interest rate, exchange rate or commodity price risks and not for speculative purposes), in each case that may or be unsecured or secured by Cash and issued on behalf of the Borrower or a Subsidiary thereof in an aggregate amount not to exceed \$3,000,000 at any time outstanding,
- (viii) other unsecured Indebtedness in an amount not to exceed \$250,000 at any time outstanding,
- (ix) intercompany Indebtedness as long as either (A) each of the Subsidiary obligor and the Subsidiary obligee under such Indebtedness is a Subsidiary that has executed a Joinder Agreement, or (B) it is Indebtedness of an Excluded Subsidiary permitted under clause (x) of the definition of Permitted Investments;
- (x) Permitted Convertible Debt not to exceed Five Hundred Million Dollars (\$500,000,000) in principal amount at any one time outstanding;
- (xi) Indebtedness with respect to a Permitted Royalty Transaction that (a) is subordinated to the Secured Obligations pursuant to a subordination or intercreditor agreement on terms and conditions reasonably satisfactory to Agent, (b) does not have a scheduled maturity date earlier than one hundred eighty (180) days after the Term Loan

Maturity Date, (c) is in an aggregate amount not to exceed \$250,000,000, and (d) shall specifically designate this Agreement and all Secured Obligations as “designated senior indebtedness” or similar term so that the subordination terms referred to in clause (a) of this clause specifically refer to such notes as being subordinated to the Secured Obligations pursuant to such subordination terms;

(xii) Indebtedness incurred as a result of endorsing negotiable instruments received in the ordinary course of business;

(xiii) Indebtedness in respect of surety bonds and other indemnities and similar obligations up to an aggregate amount of Five Hundred Thousand Dollars (\$500,000) at any one time outstanding;

(xiv) Indebtedness arising with respect to Borrower’s real property lease and operating lease obligations in the ordinary course of Borrower’s business; and

(xv) Indebtedness in respect of Acquisition Deferred Payments incurred in connection with Permitted Acquisitions;

(xvi) extensions, refinancings, renewals, modifications, amendments or restatements of any items of Permitted Indebtedness; provided that the principal amount is not increased or the terms modified to impose materially more burdensome terms upon Borrower or its Subsidiary, as the case may be.

“Permitted Investment” means:

(i) Investments existing on the Closing Date which are disclosed in Schedule 1B;

(ii) (a) marketable direct obligations issued or unconditionally guaranteed by the United States of America or any agency or any State thereof maturing within one year from the date of acquisition thereof currently having a rating of at least A-2 or P-2 from either Standard & Poor’s Corporation or Moody’s Investors Services, (b) commercial paper maturing no more than one year from the date of creation thereof and currently having a rating of at least A-2 or P-2 from either Standard & Poor’s Corporation or Moody’s Investors Service, (c) certificates of deposit issued by any bank with assets of at least \$500,000,000 maturing no more than one year from the date of investment therein, (d) money market accounts, and (e) Investments permitted by Borrower’s Investment Policy and Guidelines dated as of August 2016 and provided to the Agent and Lenders, as amended from time to time; provided that any material amendments thereto have been approved by Agent and the Lenders in their reasonable discretion;

(iii) repurchases of Equity Interests from current or former employees, officers, directors, or consultants of Borrower under the terms of applicable repurchase agreements at the original issuance price of such securities (1) in an aggregate amount not to exceed \$250,000 in any fiscal year; provided that no Event of Default has occurred, is continuing or would exist after giving effect to the repurchases or (2) in any amount where the consideration for the repurchase is the cancellation of indebtedness owed by such former employees, officers, directors or consultants to Borrower;

- (iv) Investments accepted in connection with Permitted Transfers;
- (v) Investments (including debt obligations) received in connection with the bankruptcy or reorganization of customers or suppliers and in settlement of delinquent obligations of, and other disputes with, customers or suppliers arising in the ordinary course of Borrower's business;
- (vi) Investments consisting of notes receivable of, or prepaid royalties and other credit extensions, to customers and suppliers who are not Affiliates, in the ordinary course of business; provided that this subparagraph (vi) shall not apply to Investments of Borrower in any Subsidiary;
- (vii) Investments consisting of loans not involving the net transfer on a substantially contemporaneous basis of cash proceeds to employees, officers or directors relating to the purchase of capital stock of Borrower pursuant to employee stock purchase plans or other similar agreements approved by Borrower's board of directors;
- (viii) Investments consisting of travel advances and employee relocation loans in the ordinary course of business;
- (ix) Investments in Subsidiaries (including creation of a Subsidiary in anticipation of a proposed Permitted Acquisition); provided that, unless such Subsidiary is an Excluded Subsidiary (after giving pro forma effect to such Investment), each such Subsidiary enters into a Joinder Agreement promptly after its formation by Borrower and execute such other related documents as shall be reasonably requested by Agent;
- (x) Investments in Excluded Subsidiaries to cover ordinary course of business operating and entity maintenance and regulatory (and, if applicable, wind-down and liquidation) costs and expenses in an aggregate amount not to exceed \$500,000 in any fiscal year, and other amounts approved in advance in writing by Agent;
- (xi) joint ventures or strategic alliances in the ordinary course of Borrower's business consisting of the nonexclusive licensing of technology, the development of technology or the providing of technical support; provided that any cash Investments by Borrower do not exceed \$250,000 in the aggregate in any fiscal year;
- (xii) Permitted Acquisitions;
- (xiii) Borrower's entry into (including payments of premiums in connection therewith), and the performance of obligations under, any Permitted Bond Hedge Transactions and Permitted Warrant Transactions in accordance with their terms;
- (xiv) Hedge Agreements constituting Permitted Indebtedness pursuant to clause (vii) thereof; and
- (xv) additional Investments that do not exceed \$250,000 in the aggregate in any fiscal year.

“Permitted Liens” means:

- (i) Liens in favor of Agent or the Lenders;
- (ii) Liens existing on the Closing Date which are disclosed in Schedule 1C;
- (iii) Liens for taxes, fees, assessments or other governmental charges or levies, either not yet delinquent or being contested in good faith by appropriate proceedings diligently conducted; provided, that Borrower maintains adequate reserves therefor on Borrower’s Books in accordance with GAAP;
- (iv) Liens securing claims or demands of materialmen, artisans, mechanics, carriers, warehousemen, landlords and other like Persons arising in the ordinary course of Borrower’s business and imposed without action of such parties; provided, that the payment thereof is not yet delinquent or remain payable without penalty, or that are being contested in good faith and by appropriate proceedings which proceedings have the effect of preventing the forfeiture or sale of the property subject thereto;
- (v) Liens arising from judgments, decrees or attachments in circumstances which do not constitute an Event of Default hereunder;
- (vi) the following Liens, to the extent made in the ordinary course of business: deposits and pledges under worker’s compensation, unemployment insurance, social security and other similar laws, or to secure the performance of bids, tenders or contracts (other than for the repayment of borrowed money) or to secure indemnity, performance or other similar bonds for the performance of bids, tenders or contracts (other than for the repayment of borrowed money) or to secure statutory obligations (other than Liens arising under ERISA or environmental Liens) or surety or appeal bonds, or to secure indemnity, performance or other similar bonds;
- (vii) Liens on Equipment or software or other intellectual property constituting purchase money Liens and Liens in connection with capital leases securing Indebtedness permitted in clause (iii) of “Permitted Indebtedness”;
- (viii) Liens incurred in connection with Subordinated Indebtedness;
- (ix) leasehold interests in leases or subleases and licenses and sublicenses granted in the ordinary course of business and not interfering in any material respect with the business of the licensor;
- (x) Liens in favor of customs and revenue authorities arising as a matter of law to secure payment of custom duties that are promptly paid on or before the date they become due;
- (xi) Liens on insurance proceeds securing the payment of financed insurance premiums that are promptly paid on or before the date they become due (provided that such Liens extend only to such insurance proceeds and not to any other property or assets);

(xii) statutory and common law rights of set-off and other similar rights as to deposits of cash and securities in favor of banks, other depository institutions and brokerage firms;

(xiii) easements, zoning restrictions, rights-of-way and similar encumbrances on real property imposed by law or arising in the ordinary course of business so long as they do not materially impair the value or marketability of the related property;

(xiv) (A) Without duplication of any Indebtedness incurred pursuant to clause (vii) of the definition of Permitted Indebtedness, Liens on Cash securing obligations permitted under clause (vii) of the definition of Permitted Indebtedness, and (B) security deposits in connection with real property leases, the combination of (A) and (B) in an aggregate amount not to exceed \$3,000,000 at any time;

(xv) Liens solely on any Cash earnest money deposits made by Borrower or any of its Subsidiaries in connection with any letter of intent or purchase agreement that constitutes a Permitted Acquisition in an aggregate amount not to exceed five percent (5%) of the aggregate purchase consideration paid in connection thereto;

(xvi) Liens solely on the royalty interests purchased pursuant to a Permitted Royalty Transaction and proceeds thereof and Intellectual Property being financed by such facility;

(xvii) Licenses that qualify as Permitted Transfers; and

(xviii) Liens incurred in connection with the extension, renewal or refinancing of the Indebtedness secured by Liens of the type described in clauses (i) through (xvii) above; provided, that any extension, renewal or replacement Lien shall be limited to the property encumbered by the existing Lien and the principal amount of the Indebtedness being extended, renewed or refinanced (as may have been reduced by any payment thereon) does not increase.

“Permitted Royalty Transaction” means any synthetic royalty participations (and not royalty purchases or buyouts) with respect to any of AXS-05, AXS-07, AXS-12, AXS-14 and/or any other proprietary assets of the Borrower whereby Borrower receives upfront unrestricted (including, not subject to any redemption, clawback, escrow or similar encumbrance or restriction) net cash proceeds of at least \$100,000,000 in exchange for rights to participation payments based on net sales of AXS-05, AXS-07, AXS-12, AXS-14 and/or any other proprietary assets of the Borrower in an amount not to exceed 7.5% of net sales, and on terms (including without limitation, that any security granted in connection with such Permitted Royalty Transaction is limited solely to the respective Intellectual Property being financed by such facility) and with a purchaser satisfactory to Agent.

“Permitted Transfers” means:

(i) sales of Inventory in the ordinary course of business,

(ii) (A) licenses and similar arrangements for the use of Intellectual Property in the ordinary course of business that could not result in a legal transfer of title of the licensed property that are non-exclusive or may be exclusive in respects other than territory or may be exclusive as to territory but only as to discreet geographical areas outside of the United States of America in the ordinary course; and (B) the abandonment, permitted lapse, cancellation, termination and/or cessation of any immaterial Company IP that is, in the reasonable judgment of the Borrower, no longer economically practicable, commercially desirable to maintain or useful, in each case, in the conduct of business of the Borrower and its Subsidiaries taken as a whole,

(iii) dispositions of worn-out, obsolete or surplus Equipment at fair market value in the ordinary course of business,

(iv) to the extent constituting Transfers, Permitted Liens and Permitted Investments,

(v) Permitted Royalty Transactions,

(vi) the disposition of any Permitted Convertible Debt, any Hedge Agreement or in connection with any Permitted Bond Hedge Transaction or Permitted Warrant Transaction, in each case as permitted hereunder,

(vii) the use or transfer of Cash in a manner that is not prohibited by the terms of this Agreement or the other Loan Documents and in the ordinary course of business,

(viii) transfers by and among the Borrower and any of its Subsidiaries (other than Permitted Investments); provided that (a)(x) such transfers are in the ordinary course of business and (y) with respect to any transfers to an Excluded Subsidiary, such transfers do not involve any transfer of any Intellectual Property and are in an aggregate amount not to exceed \$500,000 in any fiscal year or (b) such Subsidiary has entered into a Joinder Agreement and such other documents as shall reasonably be required by Agent, and

(ix) other transfers of assets having a fair market value of not more than \$500,000 in the aggregate in any fiscal year.

“Permitted Warrant Transaction” means any call option, warrant or right to purchase (or substantively equivalent derivative transaction) relating to Common Stock (or other securities or property following a merger event or other change of the Common Stock) and/or cash (in an amount determined by reference to the price of such Common Stock) sold by Borrower substantially concurrently with any purchase by Borrower of a related Permitted Bond Hedge Transaction and as may be amended in accordance with its terms; provided that (x) that the terms, conditions and covenants of each such call option transaction are customary for agreements of such type, as determined in good faith by the board of directors of the Borrower or a committee thereof and (y) such call option transaction would be classified as an equity instrument in accordance with GAAP.

“Person” means any individual, sole proprietorship, partnership, joint venture, trust, unincorporated organization, association, corporation, limited liability company, institution, other entity or government.

“Pledge Agreement” means the Pledge Agreement dated as of the Closing Date between Borrower and Agent, as the same may from time to time be amended, restated, modified or otherwise supplemented.

“Project Light Agreement” means that certain Asset Purchase Agreement, dated as of March 25, 2022, by and among Borrower and Jazz Pharmaceuticals PLC, the effectiveness of which is solely conditioned on the early termination or expiration of the waiting period under the Hart-Scott-Rodino Antitrust Improvements Act of 1976.

“Public Health Laws” means all Requirements of Law relating to the procurement, development, clinical and non-clinical evaluation, product approval or licensure, manufacture, production, analysis, distribution, dispensing, importation, exportation, use, handling, quality, sale, labeling, promotion, clinical trial registration or post market requirements of any drug, biologic or other product (including, without limitation, any ingredient or component of the foregoing products) subject to regulation under the Federal Food, Drug, and Cosmetic Act (21 U.S.C. § 301 et seq.) and the Public Health Service Act (42 U.S.C. § 201 et seq.), including without limitation the regulations promulgated by the FDA at Title 21 of the Code of Federal Regulations and all applicable regulations promulgated by the National Institutes of Health (“NIH”) and codified at Title 42 of the Code of Federal Regulations, and guidance, compliance, guides, and other policies issued by the FDA, the NIH and other comparable governmental authorities.

“Qualified Cash” means the amount of Borrower’s Cash held in accounts subject to an Account Control Agreement in favor of Agent.

“Qualified Cash A/P Amount” means the amount of Borrower’s accounts payable under GAAP not paid after the 180th day following the invoice for such account payable.

“Receivables” means (i) all of Borrower’s Accounts, Instruments, Documents, Chattel Paper, Supporting Obligations, letters of credit, proceeds of any letter of credit, and Letter of Credit Rights, and (ii) all customer lists, software, and business records related thereto.

“Redemption Conditions” means, with respect to any payment of cash in respect of the principal amount of any Permitted Convertible Debt, satisfaction of each of the following events: (a) no Default or Event of Default shall exist or result therefrom, and (b) both immediately before and at all times after such redemption, Borrower’s Qualified Cash shall be no less than 150% of the outstanding principal amount of the Secured Obligations plus the Qualified Cash A/P Amount.

“Register” has the meaning specified in Section 11.7.

“Registrations” shall mean authorizations, approvals, licenses, permits, certificates, registrations, listings, certificates, or exemptions of or issued by any governmental authority (including marketing approvals, investigational new drug applications, product recertifications, drug manufacturing establishment registration and product listing, pricing and reimbursement

approvals, labeling approvals or their foreign equivalent) that are required for the research, development, manufacture, commercialization, distribution, marketing, storage, transportation, pricing, governmental authority reimbursement, use and sale of Borrower Products.

“Regulatory Action” means an administrative or regulatory enforcement action, proceeding or investigation, warning letter, untitled letter, Form 483 or similar inspectional observations, other notice of violation letter, recall, seizure, Section 305 notice or other similar written communication, or consent decree, issued or required by the FDA or under the Public Health Laws, the NIH or a comparable governmental authority in any other regulatory jurisdiction.

“Required Lenders” means at any time, the holders of more than 50% of the sum of the aggregate unpaid principal amount of the Term Loans then outstanding.

“Requirements of Law” means, with respect to any Person, collectively, the common law and all federal, state, provincial, local, foreign, multinational or international laws, statutes, codes, treaties, standards, rules and regulations, guidelines, ordinances, orders, judgments, writs, injunctions, decrees (including administrative or judicial precedents or authorities) and the interpretation or administration thereof by, and other determinations, directives, requirements or requests of, any governmental authority, in each case that are applicable to or binding upon such Person or any of its property or to which such Person or any of its property is subject.

“Restricted License” means any Material Agreement with respect to which Borrower is the licensee (other than over-the-counter software and software that is commercially available to the public) (a) that prohibits or otherwise restricts Borrower from granting a security interest in Borrower’s interest in such Material Agreement or any other property, or (b) for which a default under or termination of could reasonably be expected to interfere in any material respect with the Agent’s right to sell any Collateral.

“Sanctioned Country” means, at any time, a country or territory which is the subject or target of any Sanctions.

“Sanctioned Person” means, at any time, (a) any Person listed in any Sanctions-related list of designated Persons maintained by the Office of Foreign Assets Control of the U.S. Department of the Treasury or the U.S. Department of State, or by the United Nations Security Council, the European Union or any EU member state, (b) any Person operating, organized or resident in a Sanctioned Country or (c) any Person controlled by any such Person.

“Sanctions” means economic or financial sanctions or trade embargoes imposed, administered or enforced from time to time by (a) the U.S. government, including those administered by the Office of Foreign Assets Control of the U.S. Department of the Treasury or the U.S. Department of State, or (b) the United Nations Security Council, the European Union or Her Majesty’s Treasury of the United Kingdom.

“Second Amendment” means that certain Second Amendment to Loan and Security Agreement, effective as of the Second Amendment Closing Date, by and among the Borrower, Agent and the Lenders.

“Second Amendment Closing Date” means the effective date of the Project Light Agreement.

“Second Amendment Signing Date” means the date on which the Second Amendment is executed by the Borrower, Agent and the Lenders.

“Second Interest Only Extension Conditions” shall mean satisfaction of each of the following events: (a) no default or Event of Default shall have occurred and be continuing; (b) the AXS-05 Milestone has been achieved; and (c) the AXS-07 Milestone has been achieved on or prior to April 30, 2026.

“Secured Obligations” means Borrower’s obligations under this Agreement and any Loan Document (other than the Warrant), including any obligation to pay any amount now owing or later arising.

“Subordinated Indebtedness” means Indebtedness subordinated to the Secured Obligations in amounts and on terms and conditions satisfactory to Agent in its sole discretion and subject to a subordination agreement in form and substance satisfactory to Agent in its sole discretion.

“Subsequent Financing” means the closing of any equity financing which becomes effective after the Closing Date in which Borrower receives net cash proceeds in excess of \$25,000,000 from the sale and issuance of its Equity Interests for Cash primarily for capital raising purposes and that is broadly marketed to multiple investors, which shall not include any Permitted Convertible Debt offering (or any Permitted Bond Hedge Transaction or Permitted Warrant Transaction) or any issuance or sale by Borrower of its Equity Interests (i) pursuant to benefit plans or arrangements, including under Borrower’s equity incentive plans (whether currently in effect or adopted by Borrower after the Closing Date) or otherwise as equity compensation, (ii) as dividends or distributions or upon stock splits, recapitalizations or similar transactions, (iii) pursuant to a merger, consolidation, acquisition, strategic alliance or similar business combination or acquisition, (iv) to banks, funds, equipment or real property lessors or other financial institutions pursuant to a non-convertible debt financing, equipment lease, loan or credit arrangement or commercial leasing transaction entered into for primarily non-equity financing purposes, (v) in connection with strategic transactions, including (A) joint ventures, manufacturing, marketing, OEM, sponsored research, collaboration or distribution arrangements or (B) technology transfer or development arrangements, (vi) securities issued or issuable to suppliers or third party service providers in connection with the provision of goods or services, (vii) in an at-the-market (ATM) offering, and (viii) securities issued in connection with options, warrants, convertible securities or other arrangement in existence on the Closing Date or issued in transactions excluded from the definition of Subsequent Financing pursuant to clause (i) through (vii) above; provided, however, that, if Borrower or its agents attempts to “wall-cross” the Lender or its assignee or nominee in conjunction with any Subsequent Financing and the Lender or its assignee or nominee declines to be “wall-crossed,” then the issuance and sale of such equity securities shall not be considered a Subsequent Financing hereunder.

“Subsidiary” means an entity, whether a corporation, partnership, limited liability company, joint venture or otherwise, in which Borrower owns or controls 50% or more of the outstanding voting securities, including each entity listed on Schedule 1 hereto.

“T3M Net Product Revenue” means Borrower’s net product revenue (as determined in accordance with GAAP) solely from the sale of AXS-05, AXS-07, AXS-12, AXS-14, any products acquired pursuant to the Project Light Agreement and any other proprietary assets of the Borrower (which may include royalty, profit sharing, or sales-based milestone revenue recognized in accordance with GAAP, but which shall not include any upfront or non-sales-based milestone payments under business development or licensing transactions), measured on a trailing three-month basis as of the date of the most recently delivered monthly financial statement in accordance with Section 7.1(a). For the avoidance of doubt, net product revenue shall not include any of the following to the extent not recognizable as revenue in accordance with GAAP (i) trade, quantity and cash discounts allowed by Borrower, (ii) discounts, refunds, rebates, charge backs, retroactive price adjustment and any other allowances which effectively reduce net selling price, (iii) product returns and allowances, (iv) allowances for shipping or other distribution expenses, (v) set-offs and counterclaims, and (vi) any other similar and customary deductions that are typically deducted from gross revenue and not included in net revenue in accordance with GAAP. Notwithstanding anything to the contrary herein, T3M Net Product Revenue shall not include any royalty payments associated with a Permitted Royalty Transaction or otherwise.

“T6M Net Product Revenue” means Borrower’s net product revenue (as determined in accordance with GAAP) solely from the sale of AXS-05, AXS-07 and any products acquired pursuant to the Project Light Agreement (which may include royalty, profit sharing, or sales-based milestone revenue recognized in accordance with GAAP, but which shall not include any upfront or non-sales-based milestone payments under business development or licensing transactions), measured on a trailing six-month basis as of the date of the most recently quarterly financial statement filed with its most recent 10-Q filing. For the avoidance of doubt, net product revenue shall not include any of the following to the extent not recognizable as revenue in accordance with GAAP (i) trade, quantity and cash discounts allowed by Borrower, (ii) discounts, refunds, rebates, charge backs, retroactive price adjustment and any other allowances which effectively reduce net selling price, (iii) product returns and allowances, (iv) allowances for shipping or other distribution expenses, (v) set-offs and counterclaims, and (vi) any other similar and customary deductions that are typically deducted from gross revenue and not included in net revenue in accordance with GAAP.

“Taxes” means all present or future taxes, levies, imposts, duties, deductions, withholdings (including backup withholding), assessments, fees or other charges imposed by any governmental authority, including any interest, additions to tax or penalties applicable thereto.

“Term Commitment” means as to any Lender, the obligation of such Lender, if any, to make a Term Loan Advance to the Borrower in a principal amount not to exceed the amount set forth under the heading “Term Commitment” opposite such Lender’s name on Schedule 1.1.

“Term Loan Advance” means each Tranche 1 Advance, Tranche 2 Advance, Tranche 3 Advance, Tranche 4 Advance, Tranche 5 Advance and any other Term Loan funds advanced under this Agreement.

“Term Loan Cash Interest Rate” means for any day a per annum rate of interest equal to the greater of either (i) the prime rate as reported in The Wall Street Journal plus 5.70%, and (ii) 8.95% but in no event greater than 10.70%.

“Term Loan Maturity Date” means October 1, 2026; provided however, if on or within five (5) Business Days of the third anniversary of the First Amendment Closing Date the Maturity Extension Conditions are satisfied, then, October 1, 2027; provided further that if such day is not a Business Day, the Term Loan Maturity Date shall be the immediately preceding Business Day.

“Trademark License” means any written agreement granting any right to use any Trademark or Trademark registration, now owned or hereafter acquired by Borrower or in which Borrower now holds or hereafter acquires any interest.

“Trademarks” means all trademarks (registered, common law or otherwise) and any applications in connection therewith, including registrations, recordings and applications in the United States Patent and Trademark Office or in any similar office or agency of the United States of America, any State thereof or any other country or any political subdivision thereof.

“Tranche 1A Commitment” means as to any Lender, the obligation of such Lender, if any, to make a Term Loan Advance to Borrowers in a principal amount not to exceed the amount set forth under the heading “Tranche 1A Term Commitment” opposite such Lender’s name on Schedule 1.1.

11. “Tranche 1B Facility Charge” means three-quarter percent (0.75%) of the Tranche 1B Advances funded, which is payable to the Lenders in accordance with Section 4.2(d).

“Tranche 1B Commitment” means as to any Lender, the obligation of such Lender, if any, to make a Term Loan Advance to Borrowers in a principal amount not to exceed the amount set forth under the heading “Tranche 1B Term Commitment” opposite such Lender’s name on Schedule 1.1.

“Tranche 2B Draw Period” means the period beginning on the AXS-05 Milestone Date and ending on, as of the applicable date of determination, (A) if the full amount of the Tranche 2A Advances have not been drawn, the earlier of (x) 181 days following the AXS-05 Milestone Date and (y) March 31, 2023 and (B) if the full amount of the Tranche 2A Advances have been drawn, March 31, 2023.

“Tranche 2C Advance Aggregate Amounts Facility Charge” means \$300,000, which is payable to the Lenders in accordance with Section 4.2(j).

“Tranche 2C Availability Conditions” means (i) that the Tranche 2C Draw Period has expired without Borrower requesting a Tranche 2C Advance, and (ii), if the Tranche 2C Advance Aggregate Amounts are to be added to the Tranche 4 Advances, (x) the Tranche 4 Draw Conditions have been met and (y) the Tranche 2C Advance Aggregate Amounts Facility Charge has been paid in accordance with Section 2.2(vii).

12. “Tranche 2C Draw Period” means the period beginning on the AXS-05 Milestone Date and ending on, December 31, 2023 and subject to approval by the Lenders’ investment committee in its sole and unfettered discretion based on the launch of AXS-05 and other factors.

13. “Tranche 2 Facility Charge” means three-quarter percent (0.75%) of the Tranche 2 Advances funded, which is payable to the Lenders in accordance with Section 4.2(e).

14. “Tranche 3B Advance Facility Charge” means \$50,000, which is payable to the Lenders in accordance with Section 4.2(k).

15. “Tranche 3B Availability Conditions” means (i) that the Tranche 3B Draw Period has expired without Borrower requesting the Tranche 3B Advance, and (ii), if the Tranche 3B Advance is to be added to the Tranche 4 Advances, (x) the Tranche 4 Draw Conditions have been met and (y) the Tranche 3B Advance Facility Charge has been paid in accordance with Section 2.2(viii).

16. “Tranche 3B Draw Period” means the period beginning on the AXS-07 Milestone Date and ending on, December 31, 2023 and subject to approval by the Lenders’ investment committee in its sole and unfettered discretion based on the launch of AXS-07 and other factors.

17. “Tranche 3 Facility Charge” means three-quarter percent (0.75%) of the Tranche 3 Advances funded, which is payable to the Lenders in accordance with Section 4.2(f).

18. “Tranche 4 Draw Conditions” means (i) Borrower’s achievement of the AXS-05 Milestone or the AXS-07 Milestone and (ii) both before and after giving effect to any such Tranche 4 Advance, (a) the Net Product Revenue Ratio shall be no greater than 4.00:1.00 and (b) no Default or Event of Default shall have occurred and be continuing.

19. “Tranche 4 Facility Charge” means (i) with respect to each Tranche 4 Advance (other than any Tranche 2C Advance Aggregate Amounts and/or the Tranche 3B Advance), one percent (1.00%) of the Tranche 4 Advances funded, which is payable to the Lenders in accordance with Section 4.2(g) and (ii) with respect to each Tranche 4 Advance consisting of the Tranche 2C Advance Aggregate Amounts and/or the Tranche 3B Advance, zero percent (0.00%) of the Tranche 5 Advances funded from such amounts.

20. “Tranche 5 Facility Charge” means one percent (1.00%) of the Tranche 5 Advances funded, which is payable to the Lenders in accordance with Section 4.2(h).

“UCC” means the Uniform Commercial Code as the same is, from time to time, in effect in the State of California; provided, that in the event that, by reason of mandatory provisions of law, any or all of the attachment, perfection or priority of, or remedies with respect to, Agent’s Lien on any Collateral is governed by the Uniform Commercial Code as the same is, from time to time, in effect in a jurisdiction other than the State of California, then the term “UCC” shall mean the Uniform Commercial Code as in effect, from time to time, in such other jurisdiction solely for purposes of the provisions thereof relating to such attachment, perfection, priority or remedies and for purposes of definitions related to such provisions.

“U.S. Person” means any Person that is a “United States person” as defined in Section 7701(a)(30) of the Code.

“Warrant” means any warrant entered into in connection with the Loan, as may be amended, restated or modified from time to time.

b. The following terms are defined in the Sections or subsections referenced opposite such terms:

Defined Term	Section
Agent	Preamble
Assignee	11.14
Borrower	Preamble
Claims	11.11
Collateral	3.1
Confidential Information	11.13
Current Company IP	5.10(a)
End of Term Charge	2.6
Event of Default	9
Extension End of Term Charge	2.6
Financial Statements	7.1
Indemnified Person	6.3
Initial End of Term Charge	2.6
Lenders	Preamble
Liabilities	6.3
Maximum Rate	2.3
Open Source License	5.10(p)
Participant Register	11.8
Prepayment Charge	2.5
Publicity Materials	11.19
Register	11.7
Rights to Payment	3.1
Specified Disputes	5.10(g)
Third Party IP	5.10(i)
Tranche 1A Advance	2.2(a)(i)
Tranche 1B Advance	2.2(a)(ii)
Tranche 1 Advance	2.2(a)(ii)
Tranche 2A Advance	2.2(a)(iii)
Tranche 2B Advance	2.2(a)(iii)
Tranche 2 Advance	2.2(a)(iii)
Tranche 3 Advance	2.2(a)(iv)
Tranche 4 Advance	2.2(a)(v)
Tranche 5 Advance	2.2(a)(vi)

c. Unless otherwise specified, all references in this Agreement or any Annex or Schedule hereto to a “Section,” “subsection,” “Exhibit,” “Annex,” or “Schedule” shall refer to the corresponding Section, subsection, Exhibit, Annex, or Schedule in or to this Agreement. Unless otherwise specifically provided herein, any accounting term used in this Agreement or the other Loan Documents shall have the meaning customarily given such term in accordance with GAAP,

and all financial computations hereunder shall be computed in accordance with GAAP, consistently applied; provided that if at any time any change in GAAP would affect the computation of any financial covenant or ratio or requirement set forth in any Loan Document, and either Borrower or Agent shall so request, Borrower, Agent and the Lenders shall negotiate in good faith to amend such ratio or requirement to preserve the original intent thereof in light of such change in GAAP; provided, further, that, until so amended, (a) such ratio or requirement shall continue to be computed in accordance with GAAP prior to such change therein and (b) Borrower shall provide Agent financial statements and other documents required under this Agreement or as reasonably requested hereunder setting forth a reconciliation between calculations of such ratio covenant or requirement made before and after giving effect to such change in GAAP. Notwithstanding the foregoing, any obligations of a Person that are or would have been treated as operating leases for purposes of GAAP prior to the issuance by the Financial Accounting Standards Board on February 25, 2016 of an Accounting Standards Update (the "ASU") shall continue to be accounted for as operating leases for purposes of all financial definitions, calculations and covenants for purpose of this Agreement (whether or not such operating lease obligations were in effect on such date) notwithstanding the fact that such obligations are required in accordance with the ASU (on a prospective or retroactive basis or otherwise) to be treated as capitalized lease obligations in accordance with GAAP (other than for purposes of the delivery of financial statements prepared in accordance with GAAP). Unless otherwise defined herein or in the other Loan Documents, terms that are used herein or in the other Loan Documents and defined in the UCC shall have the meanings given to them in the UCC. For all purposes under the Loan Documents, in connection with any division or plan of division under Delaware law (or any comparable event under a different jurisdiction's laws): (a) if any asset, right, obligation or liability of any Person becomes the asset, right, obligation or liability of a different Person, then it shall be deemed to have been transferred from the original Person to the subsequent Person and (b) if any new Person comes into existence, such new Person shall be deemed to have been organized on the first date of its existence by the holders of its Equity Interests at such time.

d. Notwithstanding anything to the contrary in this Agreement or any other Loan Document, all terms of an accounting or financial nature used herein shall be construed, and all computations of amounts and ratios referred to herein shall be made without giving effect to any treatment of Indebtedness in respect of convertible debt instruments under Accounting Standards Codification 470-20 (or any other Accounting Standards Codification or Financial Accounting Standard having a similar result or effect) to value any such Indebtedness in a reduced or bifurcated manner as described therein, and such Indebtedness shall at all times be valued at the full stated principal amount thereof. For the avoidance of doubt, and without limitation of the foregoing, Permitted Convertible Debt shall at all times be valued at the full stated principal amount thereof and shall not include any reduction or appreciation in value of the shares deliverable upon conversion thereof.

2. THE LOAN

- a. [Reserved]
- b. Term Loan.
 - i. Advances.

1. Subject to the terms and conditions of this Agreement, the Lenders will severally (and not jointly) make in an amount not to exceed their respective Tranche 1A Commitments, and Borrower agrees to draw, a Term Loan Advance of Fifty Million Dollars (\$50,000,000) on the Closing Date (the “Tranche 1A Advance”).

2. Subject to the terms and conditions of this Agreement, Lenders will severally (and not jointly) make, in an amount not to exceed their respective Tranche 1B Commitments, an additional Term Loan Advance in an aggregate principal amount of Forty-Five Million Dollars (\$45,000,000) on the Second Amendment Closing Date (the “Tranche 1B Advance” and together with the Tranche 1A Advance, each a “Tranche 1 Advance”).

3. Subject to the terms and conditions of this Agreement, (A) beginning on the AXS-05 Milestone Date and continuing through the earlier of (x) 90 days following the AXS-05 Milestone Date and (y) December 31, 2022, Borrower may request and the Lenders shall severally (and not jointly) make additional Term Loan Advances in an aggregate principal amount of up to Thirty Five Million Dollars (\$35,000,000), in minimum increments of Five Million Dollars (\$5,000,000) (each, a “Tranche 2A Advance”) (B) during the Tranche 2B Draw Period, Borrower may request and the Lenders shall severally (and not jointly) make additional Term Loan Advances in an aggregate principal amount of up to Thirty Five Million Dollars (\$35,000,000), in minimum increments of Five Million Dollars (\$5,000,000) (each, a “Tranche 2B Advance”) and (C) during the Tranche 2C Draw Period, subject to approval by the Lenders’ investment committee in its sole and unfettered discretion based on the launch of AXS-05 and other factors, Borrower may request and the Lenders shall severally (and not jointly) make additional Term Loan Advances in an aggregate principal amount of up to Thirty Million Dollars (\$30,000,000) (the “Tranche 2C Advance Aggregate Amount”), in minimum increments of Five Million Dollars (\$5,000,000) (each, a “Tranche 2C Advance” and together with each Tranche 2B Advance and Tranche 2A Advance, each a “Tranche 2 Advance”).

4. Subject to the terms and conditions of this Agreement, (A) beginning on the AXS-07 Milestone Date and continuing through the earlier of (x) 181 days following the AXS-07 Milestone Date and (y) June 30, 2023, Borrower may request and the Lenders shall severally (and not jointly) make additional Term Loan Advances in an aggregate principal amount of up to Fifteen Million Dollars (\$15,000,000), in minimum increments of Five Million Dollars (\$5,000,000) (each, a “Tranche 3A Advance”) and (B) during the Tranche 3B Draw Period, subject to approval by the Lenders’ investment committee in its sole and unfettered discretion based on the launch of AXS-07 and other factors, Borrower may request and the Lenders shall severally (and not jointly) make an additional Term Loan Advance in an aggregate principal amount of up to Five Million Dollars (\$5,000,000) (the “Tranche 3B Advance” and together with the Tranche 3A Advances, each, a “Tranche 3 Advance”).

5. Subject to the terms and conditions of this Agreement, and subject to the satisfaction of Tranche 4 Draw Conditions, beginning on January 1, 2022 and

continuing through December 31, 2024, Borrower may request additional Term Loan Advances in an aggregate principal amount of up to Fifty Million Dollars (\$50,000,000) (the “Tranche 4 Commitments”), plus subject to the Tranche 2C Availability Conditions, the Tranche 2C Advance Aggregate Amount, plus, subject to the Tranche 3B Availability Conditions, the Tranche 3B Advance, in minimum increments of Five Million Dollars (\$5,000,000) (each, a “Tranche 4 Advance”). Tranche 4 Advances shall be funded first from the Tranche 4 Commitments, second from the Tranche 2C Advance Aggregate Amounts, if any and third from the Tranche 3B Advance, if any.

6. Subject to the terms and conditions of this Agreement, and conditioned on approval by the Lenders’ investment committee in its sole and unfettered discretion, on or before December 31, 2025, Borrower may request additional Term Loan Advances in an aggregate principal amount of up to Thirty Five Million Dollars (\$35,000,000) plus subject to the Tranche 2C Availability Conditions, the Tranche 2C Advance Aggregate Amount if such amount has not been added to the Tranche 4 Advance, plus, subject to the Tranche 3B Availability Conditions, the Tranche 3B Advance if such advance has not been added to Tranche 4 Advance, in minimum increments of Five Million Dollars (\$5,000,000) (each, a “Tranche 5 Advance”).

7. Borrower shall elect and give written notice to Agent to add the Tranche 2C Advance Aggregate Amount upon the occurrence of the Tranche 2C Availability Conditions to either the Tranche 4 Advance or the Tranche 5 Advance on or prior to December 31, 2023; provided that as a condition to selecting to add the Tranche 2C Advance Aggregate Amount to the Tranche 4 Advance, Borrower shall have paid the Tranche 2C Advance Aggregate Amounts Facility Charge.

8. Borrower shall elect and give written notice to Agent to add the Tranche 3B Advance upon the occurrence of the Tranche 3B Availability Conditions to either the Tranche 4 Advance or the Tranche 5 Advance on or prior to December 31, 2023; provided that as a condition to selecting to add the Tranche 3B Advance to the Tranche 4 Advance, Borrower shall have paid the Tranche 3B Advance Facility Charge.

9. The aggregate outstanding Term Loan Advances may be up to the Maximum Term Loan Amount.

ii. Advance Request. To obtain a Term Loan Advance, Borrower shall complete, sign and deliver an Advance Request (at least one (1) Business Day before the Closing Date and at least five (5) Business Days before each Advance Date other than the Closing Date) to Agent. The Lenders shall fund the Term Loan Advance in the manner requested by the Advance Request provided that each of the conditions precedent to such Term Loan Advance is satisfied as of the requested Advance Date.

iii. Interest.

1. Term Loan Cash Interest Rate. The principal balance of each Term Loan Advance shall bear interest thereon from such Advance Date at the Term Loan Cash Interest Rate based on a year consisting of 360 days, with interest computed daily based on the actual number of days elapsed. The Term Loan Cash Interest Rate will float and change on the day the prime rate changes from time to time.

2. [Reserved].

3. [Reserved].

iv. Payment. Borrower will pay interest on each Term Loan Advance on the first Business Day of each month, beginning the month after the Advance Date (each an "Interest Payment Date"). Borrower shall repay the aggregate Term Loan principal balance that is outstanding on the day immediately preceding the Amortization Date, in equal monthly installments of principal and interest (mortgage style) beginning on the Amortization Date and continuing on the first Business Day of each month thereafter until the Secured Obligations (other than any inchoate indemnity obligations and any other obligations which, by their terms, are to survive the termination of this Agreement) are repaid; provided, that if the Term Loan Cash Interest Rate is adjusted in accordance with its terms, the amount of each subsequent monthly installment shall be recalculated so that the remaining payments shall be equal monthly installments of principal and interest beginning on the first Business Day of the month following such recalculation and continuing on the first Business Day of each month thereafter until the Secured Obligations (other than any inchoate indemnity obligations and any other obligations which, by their terms, are to survive the termination of this Agreement) are repaid in full. The entire Term Loan principal balance and all accrued but unpaid interest hereunder, shall be due and payable on the Term Loan Maturity Date. Borrower shall make all payments under this Agreement without setoff, recoupment or deduction and regardless of any counterclaim or defense. If a payment hereunder becomes due and payable on a day that is not a Business Day, the due date thereof shall be the immediately preceding Business Day. The Lenders will initiate debit entries to the Borrower's account as authorized on the ACH Authorization (i) on each payment date of all periodic obligations payable to the Lenders under each Term Loan Advance and (ii) reasonable, documented, out-of-pocket legal fees and costs incurred by Agent or the Lenders in connection with Section 11.12 of this Agreement; provided that, with respect to clause (i) above, in the event that the Lenders or Agent informs Borrower that the Lenders will not initiate a debit entry to Borrower's account for a certain amount of the periodic obligations due on a specific payment date, Borrower shall pay to the Lenders such amount of periodic obligations in full in immediately available funds on such payment date; provided, further, that, with respect to clause (i) above, if the Lenders or Agent informs Borrower that the Lenders will not initiate a debit entry as described above later than the date that is three (3) Business Days prior to such payment date, Borrower shall pay to the Lenders such amount of periodic obligations in full in immediately available funds on the date that is three (3) Business Days after the date on which the Lenders or Agent notifies Borrower of such; provided, further, that, with respect to clause (ii) above, in the event that the Lenders or Agent informs Borrower that the Lenders will not initiate a debit entry to Borrower's account for certain amount of such reasonable, documented out-of-pocket legal fees and costs incurred by Agent or the

Lenders, Borrower shall pay to the Lenders such amount in full in immediately available funds within three (3) Business Days.

c. **Maximum Interest.** Notwithstanding any provision in this Agreement or any other Loan Document, it is the parties' intent not to contract for, charge or receive interest at a rate that is greater than the maximum rate permissible by law that a court of competent jurisdiction shall deem applicable hereto (which under the laws of the State of California shall be deemed to be the laws relating to permissible rates of interest on commercial loans) (the "Maximum Rate"). If a court of competent jurisdiction shall finally determine that Borrower has actually paid to the Lenders an amount of interest in excess of the amount that would have been payable if all of the Secured Obligations had at all times borne interest at the Maximum Rate, then such excess interest actually paid by Borrower shall be applied as follows: first, to the payment of the Secured Obligations consisting of the outstanding principal; second, after all principal is repaid, to the payment of the Lenders' accrued interest, costs, expenses, professional fees and any other Secured Obligations; and third, after all Secured Obligations are repaid, the excess (if any) shall be refunded to Borrower.

d. **Default Interest.** In the event any payment is not paid on the scheduled payment date (or promptly following resolution of an ACH Failure (and in no event later than three (3) Business Days of the scheduled payment date); provided that such late payment is due to an ACH Failure), an amount equal to five percent (5%) of the past due amount shall be payable on demand. In addition, upon the occurrence and during the continuation of an Event of Default hereunder, all Secured Obligations, including principal, interest, compounded interest, and professional fees, shall bear interest at a rate per annum equal to the rate set forth in Section 2.2(c) plus five percent (5%) per annum. In the event any interest is not paid when due hereunder, delinquent interest shall be added to principal and shall bear interest on interest, compounded at the rate set forth in Section 2.2(c) or Section 2.4, as applicable.

e. **Prepayment.** At its option, upon at least seven (7) Business Days prior written notice to Agent (or such shorter notice period as agreed by Agent in its sole discretion), Borrower may at any time and from time to time, prepay all or a portion of the outstanding Advances by paying the entire principal balance, or such portion thereof in minimum increments of Five Million Dollars (\$5,000,000), all accrued and unpaid interest thereon, together with a prepayment charge equal to the following percentage of the Advance amount being prepaid: with respect to each Advance, if such Advance amounts are prepaid in any of the first twelve (12) months following the First Amendment Closing Date, 2.0%; on or after the date that is twelve (12) months following the First Amendment Closing Date but prior to twenty four (24) months following the First Amendment Closing Date, 1.5%; and on or after the date that is twenty four (24) months following the First Amendment Closing Date but prior to thirty six (36) months following the First Amendment Closing Date, 1.0% (each, a "Prepayment Charge"). If at any time Borrower elects to make a prepayment, and at such time, there are outstanding Advances under multiple Tranches, the Prepayment Charge shall be determined by applying the amount of such prepayment in the following order: first, to the outstanding principal amount (and accrued but unpaid interest thereon) of Advances outstanding under the Tranche with the latest initial funding date; second, to the outstanding principal amount (and accrued but unpaid interest thereon) of Advances

outstanding under the Tranche with the next latest initial funding date and so on until the entire principal balance of all Advances made hereunder (and all accrued but unpaid interest thereon) is paid in full. Borrower agrees that the Prepayment Charge is a reasonable calculation of the Lenders' lost profits in view of the difficulties and impracticality of determining actual damages resulting from an early repayment of the Advances. Borrower shall prepay the outstanding amount of all principal and accrued interest through the prepayment date and the Prepayment Charge, if any, upon the occurrence of a Change in Control or any other prepayment hereunder. Notwithstanding the foregoing, Agent and the Lenders agree to waive the Prepayment Charge if Agent and the Lenders (in their sole and absolute discretion) agree in writing to refinance the Advances prior to the Term Loan Maturity Date. Any amounts paid under this Section shall be applied by Agent to the then unpaid amount of any Secured Obligations (including principal and interest) in such order and priority as Agent may choose in its sole discretion. For the avoidance of doubt, if a payment hereunder becomes due and payable on a day that is not a Business Day, the due date thereof shall be the immediately preceding Business Day. Notwithstanding anything to the contrary contained in this Agreement, so long as Borrower provided notice to the Agent no less than seven (7) Business Days prior to the proposed prepayment date, Borrower may rescind any notice of prepayment if such prepayment would have resulted from a refinancing of all or a portion of the Term Loan Advances, which refinancing shall not be consummated or shall otherwise be delayed.

f. End of Term Charge.

i. On any date that Borrower partially prepays the outstanding Secured Obligations pursuant to Section 2.5, Borrower shall pay the Lenders (x) with respect to any repayment of any Tranche 1A Advances, a charge of 4.85% of the principal amount of such Term Loan Advances being repaid and (y) for all other Advances repaid, a charge of 4.50% of the principal amount of such Term Loan Advances being repaid.

ii. On the earliest to occur of (i) October 1, 2026, (ii) the date that Borrower prepays the outstanding Secured Obligations (other than any inchoate indemnity obligations and any other obligations which, by their terms, are to survive the termination of this Agreement) in full, or (iii) the date that the Secured Obligations become due and payable in full (other than regularly scheduled interest and amortization payments), Borrower shall pay the Lenders a charge equal to (x) Two Million Nine Hundred and Ten Thousand Dollars (\$2,910,000), plus (y) 4.50% of the aggregate amount of all Term Loan Advances (other than Tranche 1A Advances) funded, minus (z) the aggregate amount of payments made pursuant to Section 2.6(a) (the "Initial End of Term Charge").

iii. If the Maturity Extension Conditions are satisfied, on the earliest to occur of (i) October 1, 2027, (ii) the date that Borrower prepays the outstanding Secured Obligations (other than any inchoate indemnity obligations and any other obligations which, by their terms, are to survive the termination of this Agreement) in full, or (iii) the date that the Secured Obligations become due and payable in full (other than regularly scheduled interest and amortization payments), Borrower shall pay the Lenders an additional charge equal to 1.50% of the aggregate amount of all Term Loan Advances outstanding as of the date on which the Maturity Extension Conditions are satisfied (the "Extension End of Term").

Charge”, collectively with any charge made pursuant to Section 2.6(a) and the Initial End of Term Charge, the “End of Term Charge”).

iv. Notwithstanding the required payment date of such End of Term Charge, the applicable pro rata portion of the End of Term Charge shall be deemed earned by the Lenders as of each date a Term Loan Advance is made. For the avoidance of doubt, if a payment hereunder becomes due and payable on a day that is not a Business Day, the due date thereof shall be the immediately preceding Business Day.

g. Pro Rata Treatment. Each payment (including prepayment) on account of any fee and any reduction of the Term Loans shall be made pro rata according to the Term Commitments of the relevant Lender.

h. Taxes; Increased Costs. The Borrower, the Agent and the Lenders each hereby agree to the terms and conditions set forth on Addendum 1 attached hereto.

i. Treatment of Prepayment Charge and End of Term Charge. Borrower agrees that any Prepayment Charge and any End of Term Charge payable shall be presumed to be the liquidated damages sustained by each Lender as the result of the early termination, and Borrower agrees that it is reasonable under the circumstances currently existing and existing as of the Closing Date and the Second Amendment Closing Date. The Prepayment Charge and the End of Term Charge shall also be payable in the event the Secured Obligations (and/or this Agreement) are satisfied or released by foreclosure (whether by power of judicial proceeding), deed in lieu of foreclosure, or by any other means. Borrower expressly waives (to the fullest extent it may lawfully do so) the provisions of any present or future statute or law that prohibits or may prohibit the collection of the foregoing Prepayment Charge and End of Term Charge in connection with any such acceleration. Borrower agrees (to the fullest extent that each may lawfully do so): (a) each of the Prepayment Charge and the End of Term Charge is reasonable and is the product of an arm’s length transaction between sophisticated business people, ably represented by counsel; (b) each of the Prepayment Charge and the End of Term Charge shall be payable notwithstanding the then prevailing market rates at the time payment is made; (c) there has been a course of conduct between the Lenders and Borrower giving specific consideration in this transaction for such agreement to pay the Prepayment Charge and the End of Term Charge as a charge (and not interest) in the event of prepayment or acceleration; (d) Borrower shall be estopped from claiming differently than as agreed to in this paragraph. Borrower expressly acknowledges that their agreement to pay each of the Prepayment Charge and the End of Term Charge to the Lenders as herein described was on the Closing Date and the Second Amendment Closing Date and continues to be a material inducement to the Lenders to provide the Term Loans.

3. SECURITY INTEREST

a. As security for the prompt and complete payment when due (whether on the payment dates or otherwise) of all the Secured Obligations, Borrower grants to Agent a security interest in all of Borrower’s right, title, and interest in, to and under all of Borrower’s personal property and other assets including without limitation the following

(except as set forth herein) whether now owned or hereafter acquired (collectively, the “Collateral”): (a) Receivables; (b) Equipment; (c) Fixtures; (d) General Intangibles; (e) Inventory; (f) Investment Property; (g) Deposit Accounts; (h) Cash; (i) Goods; (j) the Antecip License Agreement and all proceeds thereof; and all other tangible and intangible personal property of Borrower whether now or hereafter owned or existing, leased, consigned by or to, or acquired by, Borrower and wherever located, and any of Borrower’s property in the possession or under the control of Agent; and, to the extent not otherwise included, all Proceeds of each of the foregoing and all accessions to, substitutions and replacements for, and rents, profits and products of each of the foregoing.

b. Notwithstanding the broad grant of the security interest set forth in Section 3.1, above, the Collateral shall not include (collectively, the “Excluded Property”) (a) any “intent to use” trademarks at all times prior to the first use thereof, whether by the actual use thereof in commerce, the recording of a statement of use with the United States Patent and Trademark Office or otherwise, provided, that upon submission and acceptance by the United States Patent and Trademark Office of an amendment to allege use of an intent-to-use trademark application pursuant to 15 U.S.C. Section 1060(a) (or any successor provision) such intent-to-use application shall constitute Collateral, (b) non-assignable property, licenses or contracts, which by their terms require the consent of the licensor thereof or another party (but only to the extent such prohibition on transfer is enforceable under applicable law, including, without limitation, Sections 9406, 9407 and 9408 of the UCC), (c) any particular asset if the pledge thereof or the security interest therein is prohibited or restricted by applicable law, rule or regulation (including any requirement to obtain the consent of any governmental authority, regulatory authority or third party), provided that the foregoing exclusion of this clause (c) shall in no way be construed (1) to apply to the extent that any described prohibition or restriction is unenforceable under Section 9406, 9407 or 9408 of the UCC or other applicable law or (2) to apply to the extent that any consent or waiver has been obtained, or is hereafter obtained, that would permit the Agent’s security interest or Lien notwithstanding the prohibition or restriction on the pledge of such asset, (d) any Excluded Accounts, including cash pledged pursuant to Permitted Liens and any Deposit Account, securities account, commodities account or other account to the extent solely and exclusively used to hold any cash pledged as a Permitted Lien, and (e) Equipment and software (and the products and proceeds thereof) subject to Permitted Liens of the type described in clause (vii) of the definition of Permitted Liens, but only to the extent and for so long as the agreements under which the equipment is financed prohibit granting a security interest therein to Lender.

c. Upon termination of this Agreement and repayment in full of all Secured Obligations (other than any inchoate indemnity obligations and any other obligations which, by their terms, are to survive the termination of this Agreement), all security interest in the Collateral granted under this Agreement shall terminate and all rights on the Collateral shall revert to Borrower. Agent shall execute such documents and take such other steps as are reasonably necessary for Borrower to accomplish the foregoing, all at Borrower’s sole cost and expense.

4.CONDITIONS PRECEDENT TO LOAN

The obligations of the Lenders to make the Loan hereunder are subject to the satisfaction by Borrower of the following conditions:

- a. Initial Advance. On or prior to the Closing Date, Borrower shall have delivered to Agent the following:
 - i. executed copies of the Loan Documents (other than the Warrant, which shall be an original), Account Control Agreements, and all other documents and instruments reasonably required by Agent to effectuate the transactions contemplated hereby or to create and perfect the Liens of Agent with respect to all Collateral, in all cases in form and substance reasonably acceptable to Agent;
 - ii. a legal opinion of Borrower's counsel in form and substance reasonably acceptable to Agent,
 - iii. certified copy of resolutions of Borrower's board of directors evidencing approval of (i) the Loan and other transactions evidenced by the Loan Documents; and (ii) the Warrant and transactions evidenced thereby;
 - iv. certified copies of the Certificate of Incorporation and the Bylaws, as amended through the Closing Date, of Borrower;
 - v. a certificate of good standing for Borrower from its state of incorporation and similar certificates from all other jurisdictions in which it does business and where the failure to be qualified could have a Material Adverse Effect;
 - vi. payment of the Due Diligence Fee, Initial Facility Charge and reimbursement of Agent's and the Lenders' current expenses reimbursable pursuant to this Agreement, which amounts may be deducted from the initial Advance;
 - vii. all certificates of insurance and copies of each insurance policy required hereunder;
 - viii. executed copy of the Antecip Direct Agreement; and
 - ix. such other documents as Agent may reasonably request.
- b. All Advances. On each Advance Date:
 - i. Agent shall have received (i) an Advance Request for the relevant Advance as required by Section 2.2(b), each duly executed by Borrower's Chief Executive Officer or Chief Financial Officer, and (ii) any other documents Agent may reasonably request.
 - ii. The representations and warranties set forth in this Agreement shall be true and correct in all material respects on and as of the Advance Date with the same effect as though made on and as of such date, except to the extent such representations and warranties expressly relate to an earlier date.

iii. Borrower shall be in compliance with all the terms and provisions set forth herein and in each other Loan Document on its part to be observed or performed, and at the time of and immediately after such Advance no Event of Default shall have occurred and be continuing.

iv. with respect to any Tranche 1B Advance, the Borrower shall have paid the Tranche 1B Facility Charge.

v. with respect to any Tranche 2 Advance, the Borrower shall have paid the Tranche 2 Facility Charge.

vi. with respect to any Tranche 3 Advance, the Borrower shall have paid the Tranche 3 Facility Charge.

vii. with respect to any Tranche 4 Advance, the Borrower shall have paid the Tranche 4 Facility Charge.

viii. with respect to any Tranche 5 Advance, the Borrower shall have paid the Tranche 5 Facility Charge.

ix. with respect to any Advance on and after the Second Amendment Effective Date, a Warrant substantially in the form of Exhibit K which shall be in form and substance satisfactory to Agent.

x. upon adding any Tranche 2C Advance Aggregate Amounts to the Tranche 4 Advances in accordance with Section 2(a)(vii), the Borrower shall have paid the Tranche 2C Advance Aggregate Amounts Facility Charge on or prior to December 31, 2023.

xi. upon adding the Tranche 3B Advance to the Tranche 4 Advances in accordance with Section 2(a)(viii), the Borrower shall have paid the Tranche 3B Advance Facility Charge on or prior to December 31, 2023.

xii. Prior to the funding of any Tranche 4 Advance, Borrower shall deliver to Agent a calculation detailing the Net Product Revenue Ratio and demonstrating compliance with the Tranche 4 Draw Conditions in form and substance reasonably acceptable to Agent.

xiii. Each Advance Request shall be deemed to constitute a representation and warranty by Borrower on the relevant Advance Date as to the matters specified in paragraphs (b) and (c) of this Section 4.2 and as to the matters set forth in the Advance Request.

c. No Default. As of the Closing Date and each Advance Date, (i) no fact or condition exists that could (or could, with the passage of time, the giving of notice, or both) constitute an Event of Default and (ii) no event that has had or could reasonably be expected to have a Material Adverse Effect has occurred and is continuing.

a. Post-Close Obligations. Notwithstanding any provision herein or in any other Loan Document to the contrary, to the extent not actually delivered on or prior to the Closing Date, Borrower shall deliver to Agent (or its designated attorney or representative), within

two (2) Business Days after the Closing Date, an Account Control Agreement for Borrower's accounts (other than Excluded Accounts) maintained with Silicon Valley Bank.

5. REPRESENTATIONS AND WARRANTIES OF BORROWER

Borrower represents and warrants that:

a. Corporate Status. Borrower is a corporation duly organized, legally existing and in good standing under the laws of its state of incorporation, and is duly qualified as a foreign corporation in all jurisdictions in which the nature of its business or location of its properties require such qualifications and where the failure to be qualified could reasonably be expected to have a Material Adverse Effect. Borrower's present name, former names (if any), locations, place of formation, tax identification number, organizational identification number and other information are correctly set forth in Exhibit B, as may be updated by Borrower in a written notice (including any Compliance Certificate) provided to Agent after the Closing Date.

b. Collateral. Borrower owns the Collateral, free of all Liens, except for Permitted Liens. Borrower has the power and authority to grant to Agent a Lien in the Collateral as security for the Secured Obligations.

c. Consents. Borrower's execution, delivery and performance of this Agreement and all other Loan Documents, and Borrower's execution of the Warrant, (i) have been duly authorized by all necessary corporate action of Borrower, (ii) will not result in the creation or imposition of any Lien upon the Collateral, other than Permitted Liens and the Liens created by this Agreement and the other Loan Documents, (iii) do not violate any provisions of Borrower's Certificate or Articles of Incorporation (as applicable), bylaws, or any, law, regulation, order, injunction, judgment, decree or writ to which Borrower is subject and (iv) except as described on Schedule 5.3, do not violate any material contract or agreement or require the consent or approval of any other Person which has not already been obtained. The individual or individuals executing the Loan Documents and the Warrant are duly authorized to do so.

d. Material Adverse Effect. No event that has had or could reasonably be expected to have a Material Adverse Effect has occurred and is continuing. Borrower is not aware of any event likely to occur that is reasonably expected to result in a Material Adverse Effect.

e. Actions Before Governmental Authorities. There are no actions, suits or proceedings at law or in equity or by or before any governmental authority now pending or, to the knowledge of Borrower, threatened in writing against Borrower or its property, that is reasonably expected to result in a Material Adverse Effect.

f. Laws. Neither Borrower nor any of its Subsidiaries is in violation of any law, rule or regulation, or in default with respect to any judgment, writ, injunction or decree of any governmental authority, where such violation or default is reasonably expected to result in a Material Adverse Effect. Borrower is not in default in any manner under any provision

of any agreement or instrument evidencing (i) material Indebtedness, or any other Material Agreement to which it is a party or by which it is bound or (ii) any other agreement which default is reasonably expected to result in a Material Adverse Effect.

Neither Borrower nor any of its Subsidiaries is an “investment company” or a company “controlled” by an “investment company” under the Investment Company Act of 1940, as amended. Neither Borrower nor any of its Subsidiaries is engaged as one of its important activities in extending credit for margin stock (under Regulations X, T and U of the Federal Reserve Board of Governors). Borrower and each of its Subsidiaries has complied in all material respects with the Federal Fair Labor Standards Act. Neither Borrower nor any of its Subsidiaries is a “holding company” or an “affiliate” of a “holding company” or a “subsidiary company” of a “holding company” as each term is defined and used in the Public Utility Holding Company Act of 2005. Neither Borrower’s nor any of its Subsidiaries’ properties or assets has been used by Borrower or such Subsidiary or, to Borrower’s knowledge, by previous Persons, in disposing, producing, storing, treating, or transporting any hazardous substance other than in material compliance with applicable laws. Borrower and each of its Subsidiaries has obtained all consents, approvals and authorizations of, made all declarations or filings with, and given all notices to, all Governmental Authorities that are necessary to continue their respective businesses as currently conducted.

None of Borrower, any of its Subsidiaries, or any of Borrower’s or its Subsidiaries’ Affiliates or any of their respective agents acting or benefiting in any capacity in connection with the transactions contemplated by this Agreement is (i) in violation of any Anti-Terrorism Law, (ii) engaging in or conspiring to engage in any transaction that evades or avoids, or has the purpose of evading or avoiding or attempts to violate, any of the prohibitions set forth in any Anti-Terrorism Law, or (iii) is a Blocked Person. None of Borrower, any of its Subsidiaries, or to the knowledge of Borrower and any of their Affiliates or agents, acting or benefiting in any capacity in connection with the transactions contemplated by this Agreement, (x) conducts any business or engages in making or receiving any contribution of funds, goods or services to or for the benefit of any Blocked Person, or (y) deals in, or otherwise engages in any transaction relating to, any property or interest in property blocked pursuant to Executive Order No. 13224, any similar executive order or other Anti-Terrorism Law. None of the funds to be provided under this Agreement will be used, directly or indirectly, (a) for any activities in violation of any applicable anti-money laundering, economic sanctions and anti-bribery laws and regulations laws and regulations or (b) for any payment to any governmental official or employee, political party, official of a political party, candidate for political office, or anyone else acting in an official capacity, in order to obtain, retain or direct business or obtain any improper advantage, in violation of the United States Foreign Corrupt Practices Act of 1977, as amended.

g. Information Correct and Current. No information, report, Advance Request, financial statement, exhibit or schedule furnished, by or on behalf of Borrower to Agent in connection with any Loan Document or included therein or delivered pursuant thereto contained, or, when taken as a whole, contains any material misstatement of fact or, when taken together with all other such information or documents, omitted or omits to state any material fact necessary to make the statements therein, in the light of the circumstances under which they were, are or will be made, not materially misleading at the time such

statement was made or deemed made. Additionally, any and all financial or business projections provided by Borrower to Agent, whether prior to or after the Closing Date, shall be (i) provided in good faith and based on the most current data and information available to Borrower and subject to normal year-end adjustments, and (ii) the most current of such projections provided to Borrower's board of directors (it being understood that such projections are subject to significant uncertainties and contingencies, many of which are beyond the control of Borrower, that no assurance is given that any particular projections will be realized, that actual results may differ).

h. Tax Matters. Except as described on Schedule 5.8, (a) Borrower and its Subsidiaries have filed all federal and state income Tax returns and other material Tax returns that they are required to file, (b) Borrower and its Subsidiaries have duly paid all federal and state income Taxes and other material Taxes or installments thereof that they are required to pay, except Taxes being contested in good faith by appropriate proceedings and for which Borrower and its Subsidiaries maintain adequate reserves in accordance with GAAP, and (c) to the best of Borrower's knowledge, no proposed or pending Tax assessments, deficiencies, audits or other proceedings with respect to Borrower or any Subsidiary have had, or could reasonably be expected to have, individually or in the aggregate, a Material Adverse Effect.

i. Intellectual Property Claims. Borrower is the sole owner of, or otherwise has the right to use, the Intellectual Property material to Borrower's business. Except as described on Schedule 5.9 and as may be updated by Borrower in a written notice provided from time to time after the Closing Date, (i) each of the material Copyrights, Trademarks and Patents (other than patent applications) is valid and enforceable, (ii) no material part of the Intellectual Property has been judged invalid or unenforceable, in whole or in part, and (iii) except as set forth in the most recently delivered Compliance Certificate in accordance with Section 7.1(d), no claim has been made to Borrower in writing that any material part of the Intellectual Property violates the rights of any third party. Exhibit C (and as may be updated by Borrower in a written notice provided from time to time after the Closing Date) is a true, correct and complete list of each of Borrower's registered Patents and filed Patent applications, registered Trademarks, registered Copyrights, and Material Agreements under which Borrower licenses Intellectual Property from third parties (other than shrink-wrap software licenses, licenses that are commercially available to the public, open source licenses, licenses disclosed in writing to Agent as required under this Agreement and immaterial Intellectual Property licensed to Borrower in the ordinary course of business), together with application or registration numbers, as applicable, owned by Borrower or any Subsidiary, in each case as of the Closing Date. Borrower is not in material breach of, nor has Borrower failed to perform any material obligations under, any of the foregoing contracts, licenses or agreements and, to Borrower's knowledge, no third party to any such contract, license or agreement is in material breach thereof or has failed to perform any material obligations thereunder.

j. Intellectual Property.

(a) A true, correct and complete list of each pending, registered, issued or in-licensed Intellectual Property that, individually or taken together with any other such Intellectual

Property, is material to the business of Borrower and its Subsidiaries, taken as a whole, relating to the research, development, manufacture, production, use, commercialization, marketing, importing, storage, transport, offer for sale, distribution or sale of the Borrower Products, and is owned or co-owned by or exclusively or non-exclusively licensed to the Borrower or any of its Subsidiaries (collectively, the "Current Company IP"), including its name/title, current owner or co-owners (including ownership interest), registration, patent or application number, and registration or application date, issued or filed in the United States, is set forth on Schedule 5.10(a). Except as set forth on Schedule 5.10(a), (i) (A) each item of owned Current Company IP is valid, subsisting and (other than with respect to Patent applications) enforceable and no such item of Current Company IP has lapsed, expired, been cancelled or invalidated or become abandoned or unenforceable, and (B) no written notice has been received challenging the inventorship or ownership, or relating to any lapse, expiration, invalidation, abandonment or unenforceability, of any such item of Current Company IP, and (ii) (A) each such item of Current Company IP which is licensed from another Person is valid, subsisting and enforceable and no such item of Current Company IP has lapsed, expired, been cancelled or invalidated, or become abandoned or unenforceable, and (B) no written notice has been received challenging the inventorship or ownership, or relating to any lapse, expiration, invalidation, abandonment or unenforceability, of any such item of Current Company IP. To the knowledge of Borrower, there are no published patents, patent applications, articles or prior art references that would reasonably be expected to materially adversely affect the exploitation of the Borrower Products. Except as set forth on Schedule 5.10(a), (x) each Person who has or has had any rights in or to owned Current Company IP or any trade secrets owned by the Borrower or any of its Subsidiaries, including each inventor named on the Patents within such owned Current Company IP filed by the Borrower or any of its Subsidiaries, and has executed an agreement assigning his, her or its entire right, title and interest in and to such owned Current Company IP and such trade secrets, and the inventions, improvements, ideas, discoveries, writings, works of authorship, information and other intellectual property embodied, described or claimed therein, to the stated owner thereof, and (y) no such Person has any contractual or other obligation that would preclude or conflict with such assignment or the exploitation of the Borrower Products or entitle such Person to ongoing payments.

(b) (i) The Borrower or any of its Subsidiaries possesses valid title to the Current Company IP for which it is listed as the owner or co-owner, as applicable, on Schedule 5.10(a); and (ii) there are no Liens on any Current Company IP.

(c) There are no maintenance, annuity or renewal fees that are currently overdue beyond their allotted grace period for any of the Current Company IP which is owned by or exclusively licensed to the Borrower or any of its Subsidiaries, nor have any applications or registrations therefor lapsed or become abandoned, been cancelled or expired. There are no maintenance, annuity or renewal fees that are currently overdue beyond their allotted grace period for any of the Current Company IP which is non-exclusively licensed to the Borrower or any of its Subsidiaries, nor have any applications or registrations therefor lapsed or become abandoned, been cancelled or expired.

(d) There are no unpaid fees or royalties under any Material Agreements that have become due, or are expected to become overdue. Each Material Agreement is in full force and effect and is legal, valid, binding, and enforceable in accordance with its respective terms, except as may be limited by bankruptcy, insolvency, reorganization, moratorium or similar laws relating

to or limiting creditors' rights generally or by equitable principles relating to enforceability. Except as set forth on Schedule 5.10(d), neither Borrower nor any of its Subsidiaries, as applicable, is in breach of or default in any manner that could reasonably be expected to materially affect the Borrower Products under any Material Agreement to which it is a party or may otherwise be bound, and no circumstances or grounds exist that would give rise to a claim of breach or right of rescission, termination, non-renewal, revision or amendment of any of the Material Agreements, including the execution, delivery and performance of this Agreement and the other Loan Documents.

(e) No payments by the Borrower or any of its Subsidiaries are due to any other Person in respect of the Current Company IP, other than pursuant to the Material Agreements and those fees payable to patent offices in connection with the prosecution and maintenance of the Current Company IP, any applicable taxes and associated attorney fees.

(f) Neither the Borrower nor any of its Subsidiaries has undertaken or omitted to undertake any acts, and no circumstance or grounds exist that would invalidate or reduce, in whole or in part, the enforceability or scope of (i) the Current Company IP in any manner that could reasonably be expected to materially adversely affect the Borrower Products, or (ii) in the case of Current Company IP owned or co-owned or exclusively or non-exclusively licensed by the Borrower or any of its Subsidiaries, except as set forth on Schedule 5.10(f), the Borrower's or Subsidiary's entitlement to own or license and exploit such Current Company IP.

(g) Except as described on Schedule 5.9 or in the most recently delivered Compliance Certificate in accordance with Section 7.1(d), there is no requested, filed pending, decided or settled opposition, interference proceeding, reissue proceeding, reexamination proceeding, inter-partes review proceeding, post-grant review proceeding, cancellation proceeding, injunction, litigation, paragraph IV patent certification or lawsuit under the Hatch-Waxman Act, hearing, investigation, complaint, arbitration, mediation, demand, International Trade Commission investigation, decree, or any other dispute, disagreement, or claim, in each case alleged in writing to Borrower or any of its Subsidiaries (collectively referred to hereinafter as "Specified Disputes"), nor to the knowledge of Borrower, has any such Specified Dispute been threatened in writing, in each case challenging the legality, validity, enforceability or ownership of any Current Company IP, in each case that would have a material adverse effect on the Borrower Products.

(h) In each case where an issued Patent within the Current Company IP is owned or co-owned by the Borrower or any of its Subsidiaries by assignment, the assignment has been duly recorded with the U.S. Patent and Trademark Office.

(i) Except as set forth on Schedule 5.10(i) there are no pending or, to the knowledge of Borrower, threatened claims against Borrower or any of its Subsidiaries alleging (i) that any research, development, manufacture, production, use, commercialization, marketing, importing, storage, transport, offer for sale, distribution or sale of the Borrower Products in the United States infringes or violates (or in the past infringed or violated) the rights of any third parties in or to any Intellectual Property ("Third Party IP") or constitutes a misappropriation of (or in the past constituted a misappropriation of) any Third Party IP, or (ii) that any Current Company IP is invalid or unenforceable.

(j) Except as set forth on Schedule 5.10(j), the manufacture, production, use, commercialization, marketing, importing, storage, transport, offer for sale, distribution or sale of the Borrower Products does not, to the knowledge of Borrower, infringe or violate (or in the past infringed or violated) any issued or registered Third Party IP (including any issued Patent within the Third Party IP) or constitute a misappropriation of (or in the past constituted a misappropriation of) any Third Party IP.

(k) Except as set forth on Schedule 5.10(k), there are no settlements, covenants not to sue, consents, judgments, orders or similar obligations which: (i) restrict the rights of the Borrower or any of its Subsidiaries to use any Intellectual Property relating to the research, development, manufacture, production, use, commercialization, marketing, importing, storage, transport, offer for sale, distribution or sale of the Borrower Products (in order to accommodate any Third Party IP or otherwise), or (ii) permit any third parties to use any Company IP.

(l) Except as set forth on Schedule 5.10(l), to the knowledge of Borrower (i) there is no, nor has there been any, infringement or violation by any Person of any of the Company IP or the rights therein, and (ii) there is no, nor has there been any, misappropriation by any Person of any of the Company IP or the subject matter thereof.

(m) The Borrower and each of its Subsidiaries has taken all commercially reasonable measures customary in the biopharmaceutical industry to protect the confidentiality and value of all trade secrets owned by the Borrower or any of its Subsidiaries or used or held for use by the Borrower or any of its Subsidiaries, in each case relating to the research, development, manufacture, production, use, commercialization, marketing, importing, storage, transport, offer for sale, distribution or sale of the Borrower Products.

(n) Except as set forth on Schedule 5.10(n), at the time of any shipment of Borrower Product in the United States occurring prior to the Closing Date, the units thereof so shipped complied with their relevant specifications and were manufactured in all material respects in accordance with current FDA Good Manufacturing Practices.

(o) Except as described on Schedule 5.10(o), Borrower has all material rights with respect to Intellectual Property necessary or material in the operation or conduct of Borrower's business as currently conducted and proposed to be conducted by Borrower. Without limiting the generality of the foregoing, and in the case of Licenses, except for restrictions that are unenforceable under Division 9 of the UCC, Borrower has the right, to the extent required to operate Borrower's business, to freely transfer, license or assign Intellectual Property necessary or material in the operation or conduct of Borrower's business as currently conducted and proposed to be conducted by Borrower, without condition, restriction or payment of any kind (other than license payments in the ordinary course of business) to any third party, and Borrower owns or has the right to use, pursuant to valid licenses, all software development tools, library functions, compilers and all other third-party software and other items that are material to Borrower's business and used in the design, development, promotion, sale, license, manufacture, import, export, use or distribution of Borrower Products that are material to Borrower's business except customary covenants in inbound license agreements and equipment leases where Borrower is the licensee or lessee. Except as has been disclosed in the Perfection Certificate or pursuant to Section 7.1(d), Borrower is not a party to, nor is it bound by, any Restricted License.

No material software or other materials used by Borrower or any of its Subsidiaries (or used in any Borrower Products or any Subsidiaries' products) are subject to an open-source or similar license (including but not limited to the General Public License, Lesser General Public License, Mozilla Public License, or Affero License) (collectively, "Open Source Licenses") in a manner that would cause such software or other materials to have to be (i) distributed to third parties at no charge or a minimal charge (royalty-free basis); (ii) licensed to third parties to modify, make derivative works based on, decompile, disassemble, or reverse engineer; or (iii) used in a manner that does could require disclosure or distribution in source code form.

k. Borrower Products. Except as described on Schedule 5.11 or in the most recently delivered Compliance Certificate in accordance with Section 7.1(d), no material Intellectual Property owned by Borrower or Borrower Product has been or is subject to any actual or, to the knowledge of Borrower, threatened in writing litigation, proceeding (including any proceeding in the United States Patent and Trademark Office or any corresponding foreign office or agency) or outstanding decree, order, judgment, settlement agreement or stipulation that restricts in any manner Borrower's use, transfer or licensing thereof or that could reasonably be expected to affect the validity, use or enforceability thereof. Except as described in the most recently delivered Compliance Certificate in accordance with Section 7.1(d), there is no decree, order, judgment, agreement, stipulation, arbitral award or other provision entered into in connection with any litigation or proceeding that obligates Borrower to grant licenses or ownership interest in any future Intellectual Property related to the operation or conduct of the business of Borrower or Borrower Products. Except as described in the most recently delivered Compliance Certificate in accordance with Section 7.1(d), Borrower has not received any written notice or claim, or, to the knowledge of Borrower, oral notice or claim, challenging or questioning Borrower's ownership in any Intellectual Property material to Borrower's business (or written notice of any claim challenging or questioning the ownership in any licensed Intellectual Property material to Borrower's business of the owner thereof) or suggesting that any third party has any claim of legal or beneficial ownership with respect thereto nor, to Borrower's knowledge, is there a reasonable basis for any such claim. Neither Borrower's use of its Intellectual Property material to Borrower's business nor the production and sale of Borrower Products material to Borrower's business infringes the Intellectual Property or other rights of others.

l. Financial Accounts. Exhibit D, as may be updated by the Borrower in a written notice provided to Agent after the Closing Date, is a true, correct and complete list of (a) all banks and other financial institutions at which Borrower or any Subsidiary maintains Deposit Accounts and (b) all institutions at which Borrower or any Subsidiary maintains an account holding Investment Property, and such exhibit correctly identifies the name, address and telephone number of each bank or other institution, the name in which the account is held, a description of the purpose of the account, and the complete account number therefor.

m. Employee Loans. Except for Permitted Investments, Borrower has no outstanding loans to any employee, officer or director of the Borrower nor has Borrower guaranteed the payment of any loan made to an employee, officer or director of the Borrower by a third party.

n. Capitalization and Subsidiaries. Borrower's capitalization as of the Closing Date is set forth on Schedule 5.14 annexed hereto. Borrower does not own any stock, partnership interest or other securities of any Person, except for Permitted Investments. Attached as Schedule 5.14, as may be updated by Borrower in a written notice provided after the Closing Date, is a true, correct and complete list of each Subsidiary.

6.INSURANCE; INDEMNIFICATION

a. Coverage. Borrower shall cause to be carried and maintained commercial general liability insurance, on an occurrence form, against risks customarily insured against in Borrower's line of business. Such risks shall include the risks of bodily injury, including death, property damage, personal injury, advertising injury, and contractual liability per the terms of the indemnification agreement found in Section 6.3. Borrower must maintain a minimum of \$2,000,000 of commercial general liability insurance for each occurrence. Borrower has and agrees to maintain a minimum of \$2,000,000 of directors' and officers' insurance for each occurrence and \$5,000,000 in the aggregate. So long as there are any Secured Obligations (other than inchoate indemnity obligations and other obligations which are expressly stated to survive termination of this Agreement) outstanding, Borrower shall also cause to be carried and maintained insurance upon the Collateral, insuring against all risks of physical loss or damage howsoever caused, in an amount not less than the full replacement cost of the Collateral; provided that such insurance may be subject to standard exceptions and deductibles. If Borrower fails to obtain the insurance called for by this Section 6.1 or fails to pay any premium thereon or fails to pay any other amount which Borrower is obligated to pay under this Agreement or any other Loan Document or which may be required to preserve the Collateral, Agent may obtain such insurance or make such payment, and all amounts so paid by Agent are immediately due and payable, bearing interest at the then highest rate applicable to the Secured Obligations, and secured by the Collateral. Agent will make reasonable efforts to provide Borrower with notice of Agent obtaining such insurance at the time it is obtained or within a reasonable time thereafter. No payments by Agent are deemed an agreement to make similar payments in the future or Agent's waiver of any Event of Default.

b. Certificates. Borrower shall deliver to Agent certificates of insurance that evidence Borrower's compliance with its insurance obligations in Section 6.1 and the obligations contained in this Section 6.2. Borrower's insurance certificate shall state Agent (shown as "Hercules Capital, Inc., as Agent") is an additional insured for commercial general liability, a lenders loss payable for all risk property damage insurance, subject to the insurer's approval, and a lenders loss payable for property insurance and additional insured for liability insurance for any future insurance that Borrower may acquire from such insurer. Attached to the certificates of insurance will be additional insured endorsements for liability and lender's loss payable endorsements for all risk property damage insurance. All certificates of insurance will provide for a minimum of thirty (30) days advance written notice to Agent of cancellation (other than cancellation for non-payment of premiums, for which ten (10) days' advance written notice shall be sufficient) or any other change adverse to Agent's interests. Any failure of Agent to scrutinize such insurance certificates for compliance is not a waiver of any of Agent's rights, all of which are reserved. Borrower shall provide Agent with copies of each insurance policy, and upon entering or amending

any insurance policy required hereunder, Borrower shall provide Agent with copies of such policies and shall promptly deliver to Agent updated insurance certificates with respect to such policies.

c. Indemnity. Borrower agrees to indemnify and hold Agent, the Lenders and their officers, directors, employees, agents, in-house attorneys, representatives and shareholders (each, an "Indemnified Person") harmless from and against any and all claims, costs, expenses, damages and liabilities (including such claims, costs, expenses, damages and liabilities based on liability in tort, including strict liability in tort), including reasonable, documented, out-of-pocket attorneys' fees and disbursements and other costs of investigation or defense (including those incurred upon any appeal) (collectively, "Liabilities"), that may be instituted or asserted against or incurred by such Indemnified Person as the result of credit having been extended, suspended or terminated under this Agreement and the other Loan Documents or the administration of such credit, or in connection with or arising out of the transactions contemplated hereunder and thereunder, or any actions or failures to act in connection therewith, or arising out of the disposition or utilization of the Collateral, excluding in all cases Liabilities to the extent resulting solely from any Indemnified Person's gross negligence or willful misconduct. This Section 6.3 shall not apply with respect to Taxes other than any Taxes that represent losses, claims, damages, etc. arising from any non-Tax claim. In no event shall any Indemnified Person be liable on any theory of liability for any special, indirect, consequential or punitive damages (including any loss of profits, business or anticipated savings). This Section 6.3 shall survive the repayment of indebtedness under, and otherwise shall survive the expiration or other termination of, this Agreement.

7. COVENANTS OF BORROWER

Borrower agrees as follows:

a. Financial Reports. Borrower shall furnish to Agent the financial statements and reports listed hereinafter (the "Financial Statements"):

i. as soon as practicable (and in any event within thirty (30) days unless extended by Agent in connection with quarter-end closes) after the end of each month, unaudited interim and year-to-date financial statements as of the end of such month (prepared on a consolidated and consolidating basis, if applicable), including balance sheet and related statements of income and cash flows accompanied by a report detailing any material contingencies (including the commencement of any material litigation by or against Borrower) or any other occurrence that could reasonably be expected to have a Material Adverse Effect, all certified by Borrower's Chief Executive Officer or Chief Financial Officer to the effect that they have been prepared in accordance with GAAP, except (i) for the absence of footnotes, (ii) that they are subject to normal year-end adjustments, and (iii) they do not contain certain non-cash items that are customarily included in quarterly and annual financial statements;

ii. as soon as practicable (and in any event within forty-five (45) days) after the end of each calendar quarter, unaudited interim and year-to-date financial statements as of the

end of such calendar quarter (prepared on a consolidated and consolidating basis, if applicable), including balance sheet and related statements of income and cash flows accompanied by a report detailing any material contingencies (including the commencement of any material litigation by or against Borrower) or any other occurrence that could reasonably be expected to have a Material Adverse Effect, certified by Borrower's Chief Executive Officer or Chief Financial Officer to the effect that they have been prepared in accordance with GAAP, except (i) for the absence of footnotes, and (ii) that they are subject to normal year-end adjustments;

iii. as soon as practicable (and in any event within ninety (90) days) after the end of each fiscal year, unqualified audited financial statements as of the end of such year (prepared on a consolidated and consolidating basis, if applicable), including balance sheet and related statements of income and cash flows, and setting forth in comparative form the corresponding figures for the preceding fiscal year, certified by a firm of independent certified public accountants selected by Borrower and reasonably acceptable to Agent, accompanied by any management report from such accountants;

iv. as soon as practicable (and in any event within thirty (30) days unless extended by Agent in connection with quarter-end closes) after the end of each month, a Compliance Certificate in the form of Exhibit E;

v. as soon as practicable (and in any event within thirty (30) days unless extended by Agent in connection with quarter-end closes) after the end of each month, a report showing agings of accounts receivable and accounts payable;

vi. promptly and in any event within 5 days after the sending or filing thereof, as the case may be, copies of any proxy statements, financial statements or reports that Borrower has made generally available to holders of its Common Stock and copies of any regular, periodic and special reports or registration statements that Borrower files with the Securities and Exchange Commission or any governmental authority that may be substituted therefor, or any national securities exchange;

vii. [Reserved];

viii. financial and business projections promptly following their approval by Borrower's board of directors, and in any event, within sixty (60) days after the end of Borrower's fiscal year, as well as budgets, operating plans and other financial information reasonably requested by Agent; and

ix. prompt notice if Borrower or any Subsidiary has knowledge that Borrower, or any Subsidiary or Affiliate of Borrower, is listed on the OFAC Lists or (a) is convicted on, (b) pleads *nolo contendere* to, (c) is indicted on, or (d) is arraigned and held over on charges involving money laundering or predicate crimes to money laundering.

Borrower shall not (without the consent of Agent, such consent not to be unreasonably withheld or delayed), make any change in its (a) accounting policies or reporting practices, except as required by GAAP or (b) fiscal years or fiscal quarters, unless Borrower shall have

notified Agent in writing within thirty (30) days in advance of such change. The fiscal year of Borrower shall end on December 31.

The executed Compliance Certificate, and all Financial Statements required to be delivered pursuant to clauses (a), (b), (c) and (d) shall be sent via e-mail to financialstatements@htgc.com with a copy to legal@htgc.com and mdutra@htgc.com provided, that if e-mail is not available or sending such Financial Statements via e-mail is not possible, they shall be faxed to Agent at: (650) 473-9194, attention Account Manager: Axsome Therapeutics, Inc.

Notwithstanding the foregoing, documents required to be delivered under Sections 7.1(a), (b), (c) or (f) pursuant to the terms hereof (to the extent any such documents are included in materials otherwise filed with the SEC) may be delivered electronically and if so delivered, shall be deemed to have been delivered on the date on which Borrower emails a link thereto to Agent.

b. Management Rights. Borrower shall permit any representative that Agent or the Lenders authorizes, including its attorneys and accountants, to inspect the Collateral and examine and make copies and abstracts of the books of account and records of Borrower at reasonable times and upon reasonable notice during normal business hours; provided, however, that so long as no Event of Default has occurred and is continuing, such examinations shall be limited to no more often than twice per fiscal year. In addition, any such representative shall have the right to meet with management and officers of Borrower to discuss such books of account and records in connection with such examinations. In addition, Agent or the Lenders shall be entitled at reasonable times and intervals to consult with and advise the management and officers of Borrower concerning significant business issues affecting Borrower. Such consultations shall not unreasonably interfere with Borrower's business operations. The parties intend that the rights granted Agent and the Lenders shall constitute "management rights" within the meaning of 29 C.F.R. Section 2510.3-101(d)(3)(ii), but that any advice, recommendations or participation by Agent or the Lenders with respect to any business issues shall not be deemed to give Agent or the Lenders, nor be deemed an exercise by Agent or the Lenders of, control over Borrower's management or policies.

c. Further Assurances. Borrower shall from time to time following Agent's written request execute, deliver and file, alone or with Agent, any financing statements, security agreements, collateral assignments, notices, control agreements, or other documents to perfect, give the highest priority to Agent's Lien on the Collateral (subject to Permitted Liens) or otherwise evidence Agent's rights herein. Borrower shall from time to time procure any instruments or documents as may be reasonably requested by Agent, and take all further action that may be necessary, or that Agent may reasonably request, to perfect and protect the Liens granted hereby and thereby. In addition, and for such purposes only, Borrower hereby authorizes Agent to execute and deliver on behalf of Borrower and to file such financing statements (including an indication that the financing statement covers "all assets or all personal property" of Borrower in accordance with Section 9-504 of the UCC), collateral assignments, notices, control agreements, security agreements and other documents without the signature of Borrower either in Agent's name or in the name of Agent as agent and attorney-in-fact for Borrower. Borrower shall protect and defend

Borrower's title to the Collateral and Agent's Lien thereon against all Persons claiming any interest adverse to Borrower or Agent other than Permitted Liens.

d. Indebtedness. Borrower shall not create, incur, assume, guarantee or be or remain liable with respect to any Indebtedness, or permit any Subsidiary so to do, other than Permitted Indebtedness, or prepay any Indebtedness or take any actions which impose on Borrower an obligation to prepay any Indebtedness, except for (a) the conversion of Indebtedness into equity securities and the payment of cash in lieu of fractional shares in connection with such conversion, (b) payment and prepayment of purchase money Indebtedness and capital leases pursuant to its then applicable payment schedule, (c) prepayment by any Subsidiary of (i) inter-company Indebtedness owed by such Subsidiary to any Borrower, or (ii) if such Subsidiary is not a Borrower, intercompany Indebtedness owed by such Subsidiary to another Subsidiary that is not a Borrower or (d) as otherwise permitted hereunder or approved in writing by Agent.

Notwithstanding anything to the contrary in the foregoing, the issuance of, performance of obligations under (including any payments of interest), and conversion, exchange, exercise, repurchase, redemption (including, for the avoidance of doubt, a required repurchase in connection with the redemption of Permitted Convertible Debt upon satisfaction of a condition related to the stock price of the Common Stock), settlement or early termination or cancellation of (whether in whole or in part and including by netting or set-off) (in each case, whether in cash, Common Stock, following a merger event or other change of the Common Stock, other securities or property), or the satisfaction of any condition that would permit or require any of the foregoing, any Permitted Convertible Debt shall not constitute a prepayment of Indebtedness by Borrower for the purposes of this Section 7.4; *provided* that principal payments in cash (other than cash in lieu of fractional shares) shall only be allowed if the Redemption Conditions are satisfied in respect of such payment and at all times after such payment; *provided* further that, to the extent both (a) the aggregate amount of cash payable upon conversion or payment of any Permitted Convertible Debt (excluding any required payment of interest with respect to such Permitted Convertible Debt and excluding any payment of cash in lieu of a fractional share due upon conversion thereof) exceeds the aggregate principal amount thereof and (b) such conversion or payment does not trigger or correspond to an exercise or early unwind or settlement of a corresponding portion of the Permitted Bond Hedge Transactions relating to such Permitted Convertible Debt (including, for the avoidance of doubt, the case where there is no Bond Hedge Transaction relating to such Permitted Convertible Debt), the payment of such excess cash shall not be permitted by the preceding sentence.

Notwithstanding the foregoing, Borrower may repurchase, exchange or induce the conversion of Permitted Convertible Debt by delivery of shares of Common Stock and/or a different series of Permitted Convertible Debt and/or by payment of cash (in an amount that does not exceed the proceeds received by Borrower from the substantially concurrent issuance of Common Stock and/or Permitted Convertible Debt plus the net cash proceeds, if any, received by Borrower pursuant to the related exercise or early unwind or termination of the related Permitted Bond Hedge Transactions and Permitted Warrant Transactions, if any, pursuant to the immediately following proviso); *provided* that, substantially concurrently with, or a commercially reasonable period of time before or after, the related

settlement date for the Permitted Convertible Debt that is so repurchased, exchanged or converted, Borrower shall exercise or unwind or terminate early (whether in cash, shares or any combination thereof) the portion of the Permitted Bond Hedge Transactions and Permitted Warrant Transactions, if any, corresponding to such Permitted Convertible Debt that are so repurchased, exchanged or converted.

e. Collateral. Borrower shall at all times keep the Collateral and all other property and assets used in Borrower's business or in which Borrower now or hereafter holds any interest free and clear from any legal process or Liens whatsoever (except for Permitted Liens), and shall give Agent prompt written notice of any legal process affecting the Collateral, such other property and assets, or any Liens thereon, provided however, that the Collateral and such other property and assets may be subject to Permitted Liens. Borrower shall not enter into or suffer to exist or become effective any agreement that prohibits or limits the ability of any Borrower to create, incur, assume or suffer to exist any Lien upon any of its property (including Intellectual Property), whether now owned or hereafter acquired, to secure its obligations under the Loan Documents to which it is a party other than (a) this Agreement and the other Loan Documents, (b) any agreements governing any purchase money Liens or capital lease obligations otherwise permitted hereby (in which case, any prohibition or limitation shall only be effective against the assets financed thereby) and (c) customary restrictions on the assignment of leases, licenses and other agreements. Borrower shall cause its Subsidiaries to protect and defend such Subsidiary's title to its assets from and against all Persons claiming any interest adverse to such Subsidiary, and Borrower shall cause its Subsidiaries at all times to keep such Subsidiary's property and assets free and clear from any legal process or Liens whatsoever (except for Permitted Liens), and shall give Agent prompt written notice of any legal process affecting such Subsidiary's assets.

f. Investments. Borrower shall not directly or indirectly acquire or own, or make any Investment in or to any Person, or permit any of its Subsidiaries to do so, other than Permitted Investments.

Notwithstanding the foregoing, and for the avoidance of doubt, this Section 7.6 shall not prohibit the conversion by holders of (including any payment upon conversion, whether in cash, Common Stock or a combination thereof), or required payment of any principal or premium on (including, for the avoidance of doubt, in respect of a required repurchase in connection with the redemption of Permitted Convertible Debt upon satisfaction of a condition related to the stock price of the Common Stock) or required payment of any interest with respect to, any Permitted Convertible Debt in each case, in accordance with the terms of the indenture governing such Permitted Convertible Debt; provided that principal payments in cash (other than cash in lieu of fractional shares) shall only be allowed if the Redemption Conditions are satisfied in respect of such payment and at all times after such payment; provided further that, to the extent both (a) the aggregate amount of cash payable upon conversion or payment of any Permitted Convertible Debt (excluding any required payment of interest with respect to such Permitted Convertible Debt and excluding any payment of cash in lieu of a fractional share due upon conversion thereof) exceeds the aggregate principal amount thereof and (b) such conversion or payment does not trigger or correspond to an exercise or early unwind or settlement of a corresponding portion of the

Bond Hedge Transactions relating to such Permitted Convertible Debt (including, for the avoidance of doubt, the case where there is no Bond Hedge Transaction relating to such Permitted Convertible Debt), the payment of such excess cash shall not be permitted by the preceding sentence.

Notwithstanding the foregoing, Borrower may repurchase, exchange or induce the conversion of Permitted Convertible Debt by delivery of Common Stock and/or a different series of Permitted Convertible Debt and/or by payment of cash (in an amount that does not exceed the proceeds received by Borrower from the substantially concurrent issuance of Common Stock and/or Permitted Convertible Debt plus the net cash proceeds, if any, received by Borrower pursuant to the related exercise or early unwind or termination of the related Permitted Bond Hedge Transactions and Permitted Warrant Transactions, if any, pursuant to the immediately following proviso); provided that, substantially concurrently with, or a commercially reasonable period of time before or after, the related settlement date for the Permitted Convertible Debt that is so repurchased, exchanged or converted, Borrower shall exercise or unwind or terminate early (whether in cash, shares or any combination thereof) the portion of the Permitted Bond Hedge Transactions and Permitted Warrant Transactions, if any, corresponding to such Permitted Convertible Debt that are so repurchased, exchanged or converted.

g. Distributions. Borrower shall not, and shall not allow any Subsidiary to, (a) repurchase or redeem any class of stock or other Equity Interest other than pursuant to employee, director or consultant repurchase plans or other similar agreements that are Permitted Investments or the conversion of any of its convertible securities pursuant to the terms of such convertible securities; provided, however, in each case the repurchase or redemption price does not exceed the original consideration paid for such stock or Equity Interest unless required by the terms of such agreement or plan, or pursuant to a public repurchase of securities in compliance with the requirements of SEC Rule 10b-18, or (b) declare or pay any cash dividend or make any other cash distribution on any class of stock or other Equity Interest, except that a Subsidiary may pay dividends or make other distributions to Borrower or any Subsidiary of Borrower, (c) except for Permitted Investments, lend money to any employees, officers or directors or guarantee the payment of any such loans granted by a third party in excess of \$100,000 in the aggregate or (d) waive, release or forgive any Indebtedness owed by any employees, officers or directors in excess of \$100,000 in the aggregate other than cancellation of Indebtedness in connection with the repurchase of Equity Interests permitted under clause (a) above. Notwithstanding the foregoing, Borrower may redeem or repurchase stock and other Equity Interests and may declare and pay dividends and make distributions in any amount, so long as the Redemption Conditions (as applied to such redemption, repurchase, dividend or distribution) are satisfied.

Notwithstanding the foregoing, and for the avoidance of doubt, this Section 7.7 shall not prohibit the conversion by holders of (including any payment upon conversion, whether in cash, Common Stock or a combination thereof), or required payment of any principal or premium on (including, for the avoidance of doubt, in respect of a required repurchase in connection with the redemption of Permitted Convertible Debt upon satisfaction of a condition related to the stock price of the Common Stock) or required payment of any

interest with respect to, any Permitted Convertible Debt in each case, in accordance with the terms of the indenture governing such Permitted Convertible Debt; provided that principal payments in cash (other than cash in lieu of fractional shares) shall only be allowed if the Redemption Conditions are satisfied in respect of such payment and at all times after such payment; provided further that, to the extent both (a) the aggregate amount of cash payable upon conversion or payment of any Permitted Convertible Debt (excluding any required payment of interest with respect to such Permitted Convertible Debt and excluding any payment of cash in lieu of a fractional share due upon conversion thereof) exceeds the aggregate principal amount thereof and (b) such conversion or payment does not trigger or correspond to an exercise or early unwind or settlement of a corresponding portion of the Bond Hedge Transactions relating to such Permitted Convertible Debt (including, for the avoidance of doubt, the case where there is no Bond Hedge Transaction relating to such Permitted Convertible Debt), the payment of such excess cash shall not be permitted by the preceding sentence.

Notwithstanding the foregoing, Borrower may repurchase, exchange or induce the conversion of Permitted Convertible Debt by delivery of Common Stock and/or a different series of Permitted Convertible Debt and/or by payment of cash (in an amount that does not exceed the proceeds received by Borrower from the substantially concurrent issuance of Common Stock and/or Permitted Convertible Debt plus the net cash proceeds, if any, received by Borrower pursuant to the related exercise or early unwind or termination of the related Permitted Bond Hedge Transactions and Permitted Warrant Transactions, if any, pursuant to the immediately following proviso); provided that, substantially concurrently with, or a commercially reasonable period of time before or after, the related settlement date for the Permitted Convertible Debt that is so repurchased, exchanged or converted, Borrower shall exercise or unwind or terminate early (whether in cash, shares or any combination thereof) the portion of the Permitted Bond Hedge Transactions and Permitted Warrant Transactions, if any, corresponding to such Permitted Convertible Debt that are so repurchased, exchanged or converted.

Notwithstanding anything to the contrary set forth in this Section 7, and for the avoidance of doubt:

1. Borrower may make any required payment of premium to a counterparty thereunder due in connection with entering into any Permitted Bond Hedge Transaction;

2. Borrower may make any payment in connection with any Permitted Warrant Transaction by (i) delivery of shares of the Borrower's Common Stock (together with cash in lieu of fractional shares) upon net share settlement thereof, (ii) set-off, netting and/or payment of an early termination payment or other payment thereunder, in each case, in the Borrower's Common Stock and (iii) solely to the extent the Borrower does not have the option of satisfying such payment obligations through the delivery of shares of the Borrower's Common Stock or is otherwise required to satisfy such payment obligations in cash, set-off, netting and/or payment of an early termination payment or other payment thereunder, in each case, in cash (it being understood and agreed that any payment made in cash

in connection with Permitted Warrant Transactions by set-off, netting and/or payment of an early termination payment or similar payment thereunder, in each case, after using commercially reasonable efforts to satisfy such obligation (or the portion thereof remaining after giving effect to any netting or set-off against termination or similar payments under an applicable Permitted Bond Hedge Transaction) by delivery of shares of the Borrower's Common Stock shall be deemed to be a payment obligation required to be satisfied in cash); and

3. Borrower may acquire shares or other Equity Interests or cash or a combination thereof under the terms of any Permitted Bond Hedge Transaction or Permitted Warrant Transaction.

h. Transfers. Except for Permitted Transfers, Borrower shall not, and shall not allow any Subsidiary to, voluntarily or involuntarily transfer, sell, lease, license, lend or in any other manner convey any equitable, beneficial or legal interest in any material portion of its assets.

i. Mergers and Consolidations. Except for Permitted Acquisitions, Borrower shall not merge or consolidate, or permit any of its Subsidiaries to merge or consolidate, with or into any other business organization (other than mergers or consolidations of (a) a Subsidiary which is not a Borrower into another Subsidiary or into Borrower or (b) a Borrower into another Borrower).

j. Taxes. Borrower shall, and shall cause each of its Subsidiaries to, pay when due all material Taxes of any nature whatsoever now or hereafter imposed or assessed against Borrower or the Collateral or upon Borrower's ownership, possession, use, operation or disposition thereof or upon Borrower's rents, receipts or earnings arising therefrom. Borrower shall, and shall cause each of its Subsidiaries to, accurately file on or before the due date therefor (taking into account proper extensions) all federal and state income Tax returns and other material Tax returns required to be filed. Notwithstanding the foregoing, Borrower and its Subsidiaries may contest, in good faith and by appropriate proceedings diligently conducted, Taxes for which Borrower and its Subsidiaries maintain adequate reserves in accordance with GAAP.

k. Corporate Changes. Neither Borrower nor any Subsidiary shall change its corporate name, legal form or jurisdiction of formation without twenty (20) days' prior written notice to Agent. Neither Borrower nor any Subsidiary shall suffer a Change in Control. Neither Borrower nor any Subsidiary shall relocate its chief executive office or its principal place of business unless: (i) it has provided prior written notice to Agent; and (ii) such relocation shall be within the continental United States of America. Neither Borrower nor any Subsidiary shall relocate any item of Collateral (other than (u) sales of Inventory in the ordinary course of business and Permitted Transfers, (v) relocations of Equipment and other property having an aggregate value of up to \$250,000 in any fiscal year, (w) relocations of Collateral from a location described on Exhibit B to another location described on Exhibit B, (x) locations of mobile equipment, including phones, tablets and computers with employees and consultants in the ordinary course of business, (y) locations where Collateral may be temporarily located for sales, testing or demonstration purposes in

the ordinary course of business, (z) locations where biopharmaceutical compounds and therapeutic materials are located in the ordinary course of business in connection with clinical trials and development arrangements) unless (i) it has provided prompt written notice to Agent, (ii) such relocation is within the continental United States of America and, (iii) if such relocation is to a third party bailee, it has delivered a bailee agreement in form and substance reasonably acceptable to Agent.

l. Deposit Accounts. Neither Borrower nor any Subsidiary (other than Excluded Subsidiaries) shall maintain any Deposit Accounts, or accounts holding Investment Property, except with respect to which Agent has an Account Control Agreement; provided that no Account Control Agreement shall be required for Excluded Accounts. No Excluded Subsidiary shall maintain any Deposit Accounts, or accounts holding Investment Property holding more than Five Hundred Thousand Dollars (\$500,000) in the aggregate for all such Accounts of all Excluded Subsidiaries at any time.

m. Borrower shall notify Agent of each Subsidiary formed or acquired subsequent to the Closing Date and, at within 20 days such formation or acquisition (including, without limitation, pursuant to a division), as applicable, unless otherwise approved in writing by Agent in its sole discretion, shall cause any such Subsidiary (other than Excluded Subsidiaries) to execute and deliver to Agent a Joinder Agreement. If at any time, the Excluded Subsidiary Condition is not satisfied, Borrower shall promptly cause one or more Subsidiaries to execute and deliver to Agent a Joinder Agreement such that, after giving effect to such Joinder Agreement, the Excluded Subsidiary Conditions is satisfied.

n. Excluded Subsidiaries. Borrower shall not permit the Excluded Subsidiaries to: (a) have outstanding liabilities in excess of \$750,000 in the aggregate at any time, or (b) own any Intellectual Property material to the business of Borrower or Borrower and its Subsidiaries, taken as a whole.

o. Notification of Event of Default. Borrower shall notify Agent immediately of the occurrence of any Event of Default.

p. Regulatory and Product Notices. The Borrower shall promptly (but in any event within three (3) days) after the receipt or occurrence thereof notify Agent of:

(i) any written notice received by Borrower or its Subsidiaries alleging potential or actual violations of any Public Health Law by Borrower or its Subsidiaries,

(ii) any written notice that the FDA (or international equivalent) is limiting, suspending or revoking any Registration (including, but not limited to, by the issuance of a clinical hold),

(iii) any written notice that Borrower or its Subsidiaries has become subject to any Regulatory Action,

(iv) the exclusion or debarment from any governmental healthcare program or debarment or disqualification by FDA (or international equivalent) of Borrower or its Subsidiaries or its or their authorized officers,

(v) any notice that a Borrower or any Subsidiary, or any of their licensees or sublicensees (including licensees or sublicensees under any Material Agreement), is being investigated or is the subject of any allegation of potential or actual violations of any Federal Health Care Program Laws,

(vi) any written notice that any product of Borrower or its Subsidiaries has been seized, withdrawn, recalled, detained, or subject to a suspension of manufacturing, or the commencement of any proceedings in the United States or any other jurisdiction seeking the withdrawal, recall, suspension, import detention, or seizure of any Borrower Product are pending or threatened in writing against Borrower or its Subsidiaries,

(vii) changing the scope of marketing authorization or the labeling of the products of Borrower and its Subsidiaries under any such Registration, or

(viii) considering or implementing any other such regulatory action,

except, in each case of (i) through (viii) above, where such action would not reasonably be expected to have, either individually or in the aggregate, Material Regulatory Liabilities.

q. Use of Proceeds. Borrower agrees that the proceeds of the Loans shall be used solely to refinance existing indebtedness, to pay related fees and expenses in connection with this Agreement and for working capital and general corporate purposes. The proceeds of the Loans will not be used in violation of Anti-Corruption Laws or applicable Sanctions.

r. Material Agreement. The Borrower shall not, without the consent of the Agent, materially amend or terminate the Antecip License Agreement. The Borrower shall give prompt written notice to the Agent of entering into a Material Agreement or materially amending or terminating a Material Agreement.

s. Compliance with Laws.

Borrower shall maintain, and shall cause its Subsidiaries to maintain, compliance in all material respects with all applicable laws, rules or regulations (including any law, rule or regulation with respect to the making or brokering of loans or financial accommodations), and shall, or cause its Subsidiaries to, obtain and maintain all required governmental authorizations, approvals, licenses, franchises, permits or registrations reasonably necessary in connection with the conduct of Borrower's business except where a failure to do so could not reasonably be expected to have a Material Adverse Effect.

Neither Borrower nor any of its Subsidiaries shall, nor shall Borrower or any of its Subsidiaries permit any Affiliate controlled by Borrower to, directly or indirectly, knowingly enter into any documents, instruments, agreements or contracts with any Person listed on the OFAC Lists. Neither Borrower nor any of its Subsidiaries shall, nor shall Borrower or any of its Subsidiaries, permit any Affiliate controlled by Borrower to, directly or indirectly, (i) conduct any business or engage in any transaction or dealing with any Blocked Person, including, without limitation, the making or receiving of any contribution of funds, goods or services to or for the benefit of any Blocked Person, (ii) deal in, or

otherwise engage in any transaction relating to, any property or interests in property blocked pursuant to Executive Order No. 13224 or any similar executive order or other Anti-Terrorism Law, or (iii) engage in or conspire to engage in any transaction that evades or avoids, or has the purpose of evading or avoiding, or attempts to violate, any of the prohibitions set forth in Executive Order No. 13224 or other Anti-Terrorism Law.

Borrower has implemented and maintains in effect policies and procedures designed to ensure compliance by the Borrower, its Subsidiaries and their respective directors, officers, employees and agents with Anti-Corruption Laws and applicable Sanctions, and Borrower, its Subsidiaries and their respective officers and employees and to the knowledge of Borrower its directors and agents, are in compliance with Anti-Corruption Laws and applicable Sanctions in all material respects.

None of Borrower, any of its Subsidiaries or any of their respective directors, officers or employees, or to the knowledge of Borrower, any agent for Borrower or its Subsidiaries that will act in any capacity in connection with or benefit from the credit facility established hereby, is a Sanctioned Person. No Loan, use of proceeds or other transaction contemplated by this Agreement will violate Anti-Corruption Laws or applicable Sanctions.

t. Financial Covenants.

i. Minimum Cash.

1. Upon the Second Amendment Closing Date, Borrower shall thereafter maintain Qualified Cash in an amount greater than or equal to the sum of Forty Million Dollars (\$40,000,000) *plus* the Qualified Cash A/P Amount at all times; provided that beginning on the AXS-05 Milestone Date, Borrower shall thereafter maintain Qualified Cash in an amount greater than or equal to the sum of Twenty Five Million Dollars (\$25,000,000) *plus* the Qualified Cash A/P Amount at all times.

2. If Borrower makes any payment in respect to the last sentence of the first paragraph of Section 7.7 or makes any other cash payment in respect of Permitted Convertible Debt, subject to satisfaction of the Redemption Conditions, Borrower shall, at all times thereafter, maintain Qualified Cash in the amount required by the defined term "Redemption Conditions".

ii. Performance Covenant. If the Initial Performance Covenant Test Date has occurred, Borrower shall thereafter satisfy either of (i) Performance Covenant A or Performance Covenant B, tested at all times, or (ii) Performance Covenant C, tested quarterly.

u. Intellectual Property. Each Borrower shall (i) protect, defend and maintain the validity and enforceability of its Intellectual Property that is material to the conduct of Borrower's business; (ii) promptly advise Agent in writing of material infringements of its Intellectual Property; and (iii) not allow any Intellectual Property material to Borrowers' business to be abandoned, forfeited or dedicated to the public without Agent's written consent. If a Borrower (a) obtains any Patent, registered Trademark, registered Copyright,

registered mask work, or any pending application for any of the foregoing, whether as owner, licensee or otherwise, or (b) applies for any Patent or the registration of any Trademark, then such Borrower shall concurrently with the delivery of the next Compliance Certificate required under Section 7.1(d), provide written notice thereof to Agent and shall execute such intellectual property security agreements and other documents and take such other actions as Agent may request in its good faith business judgment to perfect and maintain a first priority perfected security interest in favor of Agent in such property. If a Borrower decides to register any Copyrights or mask works in the United States Copyright Office, such Borrower shall: (x) provide Agent with at least fifteen (15) days prior written notice of such Borrower's intent to register such Copyrights or mask works together with a copy of the application it intends to file with the United States Copyright Office (excluding exhibits thereto); (y) execute an intellectual property security agreement and such other documents and take such other actions as Agent may request in its good faith business judgment to perfect and maintain a first priority perfected security interest in favor of Agent in the Copyrights or mask works intended to be registered with the United States Copyright Office; and (z) record such intellectual property security agreement with the United States Copyright Office contemporaneously with filing the Copyright or mask work application(s) with the United States Copyright Office. Except as set forth in the most recently delivered Compliance Certificate in accordance with Section 7.1(d), provide to Agent (x) copies of all applications that it files for Patents or for the registration of Trademarks, Copyrights or mask works, or (y) evidence that it has acquired any registered Trademarks, in each case, together with evidence of the recording of the intellectual property security agreement required for Agent to perfect and maintain a first priority perfected security interest in such property. Borrower shall, together with the delivery of the next Compliance Certificate referred to in Section 7.01(d), provide written notice to Agent of entering into or becoming bound by any Restricted License (other than over-the-counter software that is commercially available to the public). Borrower shall use its commercially reasonable efforts take such steps as Agent reasonably requests to obtain the consent of, or waiver by, any person whose consent or waiver is necessary for (1) any Restricted License to be deemed "Collateral" and for Agent to have a security interest in it that might otherwise be restricted or prohibited by law or by the terms of any such Restricted License, whether now existing or entered into in the future, and (2) Agent to have the ability in the event of a liquidation of any Collateral to dispose of such Collateral in accordance with Agent's rights and remedies under this Agreement and the other Loan Documents.

v. Transactions with Affiliates. Borrower shall not and shall not permit any Subsidiary to, directly or indirectly, enter into or permit to exist any transaction of any kind with any Affiliate of Borrower or such Subsidiary except for (a) transactions on terms that are not less favorable to Borrower or such Subsidiary, as the case may be, than those that might be obtained in an arm's length transaction from a Person who is not an Affiliate of Borrower or such Subsidiary, (b) transactions between or among the Borrowers not involving any other Affiliate, (c) any Permitted Investment, (d) any Permitted Indebtedness, (e) any Distributions permitted by Section 7.7, (f) any Permitted Transfers, (g) to the extent approved by the Borrower's board of directors, the payment of reasonable fees to directors of Borrower who are not employees of Borrower or any Subsidiary, and compensation and employee benefit arrangements paid to, and indemnities provided for the benefit of, directors, officers or employees of Borrower or its Subsidiaries in the ordinary course of

business, and (h) any contribution to the capital of Borrower or any purchase of Equity Interests of Borrower, in each case solely to the extent such transaction does not cause a Change in Control to occur.

w. Malta Subsidiary. The Malta Subsidiary shall not hold Cash outside of the United States in excess of \$3,000,000 in the aggregate at any time outstanding.

8. RIGHT TO INVEST

a. Borrower shall provide (or in the case of a Subsequent Financing that is a registered offering, the Borrower shall use its commercially reasonable efforts to provide) the Lenders or their permitted assignees or nominees, designated as such in writing to Borrower, the opportunity, in their discretion, to participate in each Subsequent Financing in an amount of up to Five Million Dollars (\$5,000,000), in the aggregate for all Lenders and their permitted assignees or nominees, in such Subsequent Financing on substantially the same terms, conditions and pricing afforded to other investors participating in such Subsequent Financing. If the Lenders (or their permitted assignees or nominees) elect to participate in any Subsequent Financing, the Lenders (or their permitted assignees or nominees, as applicable) participating in such Subsequent Financing agree to become a party to the agreements executed by the other investors participating in such Subsequent Financing, including with respect to obligations of confidentiality or as may otherwise be required by the Securities Act of 1933, as amended, and the rules and regulations promulgated by the Securities and Exchange Commission thereunder. Borrower, or an investment bank or underwriter engaged on Borrower's behalf, shall provide the Lenders or their permitted assignees or nominees at least three (3) Business Days' written notice of any planned Subsequent Financing and the opportunity to exercise the right to invest under this Section 8.1 with respect to any such Subsequent Financing. This Section 8.1, and all rights and obligations hereunder, shall terminate upon the earliest to occur of (a) termination of this Agreement or (b) such time that the Lenders or their permitted assignees or nominees have purchased \$5,000,000 of Borrower's Equity Interests in the aggregate in Subsequent Financings.

b. In addition to the foregoing provision, upon the Second Amendment Closing Date, the Lenders have agreed to purchase between \$5,000,000 and \$8,000,000 of unregistered Common Stock of the Borrower at a share price equal to the lesser of (a) the three-day volume weighted average price as of the Second Amendment Signing Date or (b) the three-day volume weighted average price as of the Second Amendment Closing Date; provided that in no case shall the share price be less than a 20% discount to the three-day volume weighted average price of Borrower's common stock at the time of the purchase. Prior to the Second Amendment Closing Date, the parties will execute a mutually agreed upon stock purchase agreement with customary terms and provisions. For the avoidance of doubt, this investment will not count towards Lender's existing \$5,000,000 Right to Invest provided above.

9. EVENTS OF DEFAULT

The occurrence of any one or more of the following events shall be an Event of Default:

a. **Payments.** Borrower fails to pay any amount due under this Agreement or any of the other Loan Documents (other than the Warrant) on the due date; provided, however, that an Event of Default shall not occur on account of a failure to pay due solely to an administrative or operational error of Agent or the Lenders or Borrower's bank if Borrower had the funds to make the payment when due and makes the payment within three (3) Business Days following Borrower's knowledge of such failure to pay; or

b. **Covenants.** Borrower breaches or defaults in the performance of any covenant or Secured Obligation under this Agreement, or any of the other Loan Documents or any other agreement among Borrower, Agent and the Lenders, and (a) with respect to a default under any covenant under this Agreement (other than under Sections 4.4, 6, 7.4, 7.5, 7.6, 7.7, 7.8, 7.9, 7.15, 7.17, 7.18, 7.19, 7.20, 7.21, 7.22 and 7.23), any other Loan Document, or any other agreement among Borrower, Agent and the Lenders, such default continues for more than ten (10) days after the earlier of the date on which (i) Agent or the Lenders has given notice of such default to Borrower and (ii) Borrower has actual knowledge of such default or (b) with respect to a default under any of Sections 4.4, 6, 7.4, 7.5, 7.6, 7.7, 7.8, 7.9, 7.15, 7.17, 7.18, 7.19, 7.20, 7.21, 7.22 and 7.23, the occurrence of such default; or

c. **Material Adverse Effect.** A circumstance has occurred that could reasonably be expected to have a Material Adverse Effect; provided that, solely for purposes of this Section 9.3, the occurrence of any of the following, in and of itself, shall not constitute a Material Adverse Effect: (a) failure to achieve the AXS-05 Milestone, (b) failure to achieve the AXS-07 Milestone, or (c) adverse results or delays in any nonclinical or clinical trial, (d) the denial, delay or limitation of approval of the FDA with respect to any drug.

d. **Representations.** Any representation or warranty made by Borrower in any Loan Document or in the Warrant shall have been false or misleading in any material respect when made or when deemed made; or

e. **Insolvency.** Borrower (A) (i) shall make an assignment for the benefit of creditors; or (ii) shall be unable to pay its debts as they become due, or be unable to pay or perform under the Loan Documents, or shall become insolvent; or (iii) shall file a voluntary petition in bankruptcy; or (iv) shall file any petition, answer, or document seeking for itself any reorganization, arrangement, composition, readjustment, liquidation, dissolution or similar relief under any present or future statute, law or regulation pertinent to such circumstances; or (v) shall seek or consent to or acquiesce in the appointment of any trustee, receiver, or liquidator of Borrower or of all or any substantial part (i.e., 33-1/3% or more) of the assets or property of Borrower; or (vi) shall cease its operations of its business as its business has normally been conducted, or terminate substantially all of its employees; or (vii) Borrower or its directors or majority stockholders shall take any action initiating any of the foregoing actions described in clauses (i) through (vi); or (B) either (i) forty-five (45) days shall have expired after the commencement of an involuntary action against Borrower seeking reorganization, arrangement, composition, readjustment, liquidation, dissolution or similar relief under any present or future statute, law or regulation, without such action being dismissed or all orders or proceedings thereunder affecting the operations or the business of Borrower being stayed; or (ii) a stay of any such order or proceedings shall thereafter be set aside and the action setting it aside shall not be timely appealed; or (iii) Borrower shall file

any answer admitting or not contesting the material allegations of a petition filed against Borrower in any such proceedings; or (iv) the court in which such proceedings are pending shall enter a decree or order granting the relief sought in any such proceedings; or (v) forty-five (45) days shall have expired after the appointment, without the consent or acquiescence of Borrower, of any trustee, receiver or liquidator of Borrower or of all or any substantial part of the properties of Borrower without such appointment being vacated; or

f. Attachments; Judgments. Any portion of Borrower's assets is attached or seized, or a levy is filed against any such assets, or a judgment or judgments is/are entered for the payment of money (not covered by independent third party insurance as to which liability has not been rejected by such insurance carrier), individually or in the aggregate, of at least \$500,000, or Borrower is enjoined or in any way prevented by court order from conducting any part of its business as its business has normally been conducted and such attachment, seizure, levy, judgment or injunction is not, within fifteen (15) days after the occurrence thereof, satisfied, discharged, paid or stayed (whether through the posting of a bond or otherwise); or

g. Other Obligations.

i. The occurrence of any default in the payment of any Indebtedness under any agreement or obligation of Borrower involving Indebtedness in excess of \$1,000,000, beyond the period of grace if any, provided in the instrument or agreement under which such Indebtedness was created; or

ii. There is, under any agreement to which Borrower is a party with a third party or parties, any default resulting in a right by such third party or parties, whether or not exercised, to accelerate the maturity of any Indebtedness in an amount individually or in the aggregate in excess of One Million Dollars (\$1,000,000); or

iii. The occurrence of any early payment is required or unwinding or termination occurs with respect to any Permitted Bond Hedge Transaction or Permitted Warrant Transaction, or any condition giving rise to the foregoing is met, in each case, with respect to which Borrower or its Affiliate is the "affected party" or "defaulting party" under the terms of such Permitted Bond Hedge Transaction or Permitted Warrant Transaction, if a Material Adverse Effect could reasonably be expected to result from such default, early payment, unwinding or termination; or

iv. The occurrence of any default under, (i) subject to the Antecip Direct Agreement, the Antecip License Agreement that permits the counterparty thereto to terminate such agreement or (ii) any other Material Agreement that permits the counterparty thereto to terminate such Material Agreement or accelerate payments in excess of \$5,000,000 owed thereunder.

h. Stop Trade. At any time, an SEC stop trade order or NASDAQ market trading suspension of the Common Stock shall be in effect for five (5) consecutive days or five (5) days during a period of ten (10) consecutive days, excluding in all cases a suspension of all trading on a public market; provided that Borrower shall not have been able to cure such

trading suspension within thirty (30) days of the notice thereof or list the Common Stock on another public market within sixty (60) days of such notice.

10.REMEDIES

a. General. Upon the occurrence and during the continuation of any one or more Events of Default, Agent may, and at the direction of the Required Lenders shall, accelerate and demand payment of all or any part of the Secured Obligations together with a Prepayment Charge and declare them to be immediately due and payable (provided, that upon the occurrence of an Event of Default of the type described in Section 9.5, all of the Secured Obligations (including, without limitation, the Prepayment Charge and the End of Term Charge) shall automatically be accelerated and made due and payable, in each case without any further notice or act). Borrower hereby irrevocably appoints Agent as its lawful attorney-in-fact to: (a) exercisable following the occurrence and during the continuation of an Event of Default, (i) sign Borrower's name on any invoice or bill of lading for any account or drafts against account debtors; (ii) demand, collect, sue, and give releases to any account debtor for monies due, settle and adjust disputes and claims about the accounts directly with account debtors, and compromise, prosecute, or defend any action, claim, case, or proceeding about any Collateral (including filing a claim or voting a claim in any bankruptcy case in Agent's or Borrower's name, as Agent may elect); (iii) make, settle, and adjust all claims under Borrower's insurance policies; (iv) pay, contest or settle any Lien, charge, encumbrance, security interest, or other claim in or to the Collateral, or any judgment based thereon, or otherwise take any action to terminate or discharge the same; (v) transfer the Collateral into the name of Agent or a third party as the UCC permits; and (vi) receive, open and dispose of mail addressed to Borrower; and (b) regardless of whether an Event of Default has occurred, (i) endorse Borrower's name on any checks, payment instruments, or other forms of payment or security; and (ii) notify all account debtors to pay Agent directly. Borrower hereby appoints Agent as its lawful attorney-in-fact to sign Borrower's name on any documents necessary to perfect or continue the perfection of Agent's security interest in the Collateral regardless of whether an Event of Default has occurred until all Secured Obligations (other than any inchoate indemnity obligations and any other obligations which, by their terms, are to survive the termination of this Agreement) have been satisfied in full and the Loan Documents (other than the Warrant) have been terminated. Agent's foregoing appointment as Borrower's attorney in fact, and all of Agent's rights and powers, coupled with an interest, are irrevocable until all Secured Obligations (other than any inchoate indemnity obligations and any other obligations which, by their terms, are to survive the termination of this Agreement) have been fully repaid and performed and the Loan Documents (other than the Warrant) have been terminated. Agent may, and at the direction of the Required Lenders shall, exercise all rights and remedies with respect to the Collateral under the Loan Documents or otherwise available to it under the UCC and other applicable law, including the right to release, hold, sell, lease, liquidate, collect, realize upon, or otherwise dispose of all or any part of the Collateral and the right to occupy, utilize, process and commingle the Collateral. All Agent's rights and remedies shall be cumulative and not exclusive.

b. Collection; Foreclosure. Upon the occurrence and during the continuance of any Event of Default, Agent may, and at the direction of the Required Lenders shall, at any

time or from time to time, apply, collect, liquidate, sell in one or more sales, lease or otherwise dispose of, any or all of the Collateral, in its then condition or following any commercially reasonable preparation or processing, in such order as Agent may elect. Any such sale may be made either at public or private sale at its place of business or elsewhere. Borrower agrees that any such public or private sale may occur upon ten (10) calendar days' prior written notice to Borrower. Agent may require Borrower to assemble the Collateral and make it available to Agent at a place designated by Agent that is reasonably convenient to Agent and Borrower. The proceeds of any sale, disposition or other realization upon all or any part of the Collateral shall be applied by Agent in the following order of priorities:

First, to Agent and the Lenders in an amount sufficient to pay in full Agent's and the Lenders' reasonable costs and professionals' and advisors' fees and expenses as described in Section 11.12;

Second, to the Lenders in an amount equal to the then unpaid amount of the Secured Obligations (including principal, interest, and the Default Rate interest), in such order and priority as Agent may choose in its sole discretion; and

Finally, after the full and final payment in Cash of all of the Secured Obligations (other than inchoate obligations), to any creditor holding a junior Lien on the Collateral, or to Borrower or its representatives or as a court of competent jurisdiction may direct.

Agent shall be deemed to have acted reasonably in the custody, preservation and disposition of any of the Collateral if it complies with the obligations of a secured party under the UCC.

c. No Waiver. Agent shall be under no obligation to marshal any of the Collateral for the benefit of Borrower or any other Person, and Borrower expressly waives all rights, if any, to require Agent to marshal any Collateral.

d. Cumulative Remedies. The rights, powers and remedies of Agent hereunder shall be in addition to all rights, powers and remedies given by statute or rule of law and are cumulative. The exercise of any one or more of the rights, powers and remedies provided herein shall not be construed as a waiver of or election of remedies with respect to any other rights, powers and remedies of Agent.

11.MISCELLANEOUS

a. Severability. Whenever possible, each provision of this Agreement shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Agreement shall be prohibited by or invalid under such law, such provision shall be ineffective only to the extent and duration of such prohibition or invalidity, without invalidating the remainder of such provision or the remaining provisions of this Agreement.

b. Notice. Except as otherwise provided herein, any notice, demand, request, consent, approval, declaration, service of process or other communication (including the delivery of Financial Statements) that is required, contemplated, or permitted under the Loan Documents or with respect to the subject matter hereof shall be in writing, and shall be deemed to have been validly served, given, delivered, and received upon the earlier of:

(i) the day of transmission by electronic mail or hand delivery or delivery by an overnight express service or overnight mail delivery service; or (ii) the third calendar day after deposit in the United States of America mails, with proper first class postage prepaid, in each case addressed to the party to be notified as follows:

i. If to Agent:

HERCULES CAPITAL, INC.
Legal Department
Attention: Chief Legal Officer and Michael Dutra
400 Hamilton Avenue, Suite 310
Palo Alto, CA 94301
email: legal@htgc.com and mdutra@htgc.com
Telephone: 650-289-3060

ii. If to the Lenders:

HERCULES CAPITAL, INC.
Legal Department
Attention: Chief Legal Officer and Michael Dutra
400 Hamilton Avenue, Suite 310
Palo Alto, CA 94301
email: legal@htgc.com and mdutra@htgc.com
Telephone: 650-289-3060

iii. If to Borrower:

22 Cortlandt Street, 16th Floor
New York, NY, 10007
Attention: Nick Pizzie, Chief Financial Officer
email: npizzie@axsome.com
Telephone: +1-646-844-6270

or to such other address as each party may designate for itself by like notice.

c. Entire Agreement; Amendments.

i. This Agreement and the other Loan Documents constitute the entire agreement and understanding of the parties hereto in respect of the subject matter hereof and thereof, and supersede and replace in their entirety any prior proposals, term sheets, non-disclosure or confidentiality agreements, letters, negotiations or other documents or agreements, whether written or oral, with respect to the subject matter hereof or thereof (including Agent's revised proposal letter dated September 2, 2020 and the Non-Disclosure Agreement).

ii. Neither this Agreement, any other Loan Document (other than the Warrant which is subject to the amendment provisions therein), nor any terms hereof or thereof may be amended, supplemented or modified except in accordance with the provisions of this Section 11.3(b). The Required Lenders and Borrower party to the relevant Loan Document

may, or, with the written consent of the Required Lenders, the Agent and the Borrower party to the relevant Loan Document may, from time to time, (i) enter into written amendments, supplements or modifications hereto and to the other Loan Documents for the purpose of adding any provisions to this Agreement or the other Loan Documents or changing in any manner the rights of the Lenders or of the Borrower hereunder or thereunder or (ii) waive, on such terms and conditions as the Required Lenders or the Agent, as the case may be, may specify in such instrument, any of the requirements of this Agreement or the other Loan Documents or any default or Event of Default and its consequences; provided, however, that no such waiver and no such amendment, supplement or modification shall (A) forgive the principal amount or extend the final scheduled date of maturity of any Loan, extend the scheduled date of any amortization payment in respect of any Term Loan, reduce the stated rate of any interest (or fee payable hereunder) or extend the scheduled date of any payment thereof, in each case without the written consent of each Lender directly affected thereby; (B) eliminate or reduce the voting rights of any Lender under this Section 11.3(b) without the written consent of such Lender; (C) reduce any percentage specified in the definition of Required Lenders, consent to the assignment or transfer by the Borrower of any of its rights and obligations under this Agreement and the other Loan Documents, release all or substantially all of the Collateral or release a Borrower from its obligations under the Loan Documents, in each case without the written consent of all Lenders; or (D) amend, modify or waive any provision of Section 11.18 or Addendum 3 without the written consent of the Agent. Any such waiver and any such amendment, supplement or modification shall apply equally to each Lender and shall be binding upon Borrower, the Lender, the Agent and all future holders of the Loans. Notwithstanding the foregoing, the Warrant may be amended in accordance with its terms, and this Section 11.3(b) shall not apply to such amendments.

d. No Strict Construction. The parties hereto have participated jointly in the negotiation and drafting of this Agreement. In the event an ambiguity or question of intent or interpretation arises, this Agreement shall be construed as if drafted jointly by the parties hereto and no presumption or burden of proof shall arise favoring or disfavoring any party by virtue of the authorship of any provisions of this Agreement.

e. No Waiver. The powers conferred upon Agent and the Lenders by this Agreement are solely to protect its rights hereunder and under the other Loan Documents and its interest in the Collateral and shall not impose any duty upon Agent or the Lenders to exercise any such powers. No omission or delay by Agent or the Lenders at any time to enforce any right or remedy reserved to it, or to require performance of any of the terms, covenants or provisions hereof by Borrower at any time designated, shall be a waiver of any such right or remedy to which Agent or the Lenders is entitled, nor shall it in any way affect the right of Agent or the Lenders to enforce such provisions thereafter.

f. Survival. All agreements, representations and warranties contained in this Agreement and the other Loan Documents or in any document delivered pursuant hereto or thereto shall be for the benefit of Agent and the Lenders and shall survive the execution and delivery of this Agreement. Sections 6.3, 11.15 and 11.18 shall survive the termination of this Agreement.

g. Successors and Assigns. The provisions of this Agreement and the other Loan Documents shall inure to the benefit of and be binding on Borrower and its permitted assigns (if any). Borrower shall not assign its obligations under this Agreement or any of the other Loan Documents (other than the Warrant which may be assigned in accordance with its terms) without Agent's express prior written consent, and any such attempted assignment shall be void and of no effect. Agent and the Lenders may assign, transfer, or endorse its rights hereunder and under the other Loan Documents without prior notice to Borrower (provided that any assignment, transfer or endorsement of the Warrant shall be subject to the terms thereof), and all of such rights shall inure to the benefit of Agent's and the Lenders' successors and assigns; provided that as long as no Event of Default has occurred and is continuing, neither Agent nor any Lender may assign, transfer or endorse its rights hereunder or under the Loan Documents to any party that is a direct competitor of Borrower or any "vulture fund" "distressed debt fund" or similar entity (in each case, as reasonably determined by Agent in good faith), it being acknowledged that in all cases, any transfer to an Affiliate of any Lender or Agent shall be allowed. Notwithstanding the foregoing, (x) in connection with any assignment by a Lender as a result of a forced divestiture at the request of any regulatory agency, the restrictions set forth herein shall not apply and Agent and the Lenders may assign, transfer or indorse its rights hereunder and under the other Loan Documents to any Person or party (provided that any assignment, transfer or endorsement of the Warrant shall be subject to the terms thereof) and (y) in connection with a Lender's own financing or securitization transactions, the restrictions set forth herein shall not apply and Agent and the Lenders may assign, transfer or indorse its rights hereunder and under the other Loan Documents to any Person or party providing such financing or formed to undertake such securitization transaction and any transferee of such Person or party upon the occurrence of a default, event of default or similar occurrence with respect to such financing or securitization transaction (provided that any assignment, transfer or endorsement of the Warrant shall be subject to the terms thereof); provided that no such sale, transfer, pledge or assignment under this clause (y) shall release such Lender from any of its obligations hereunder or substitute any such Person or party for such Lender as a party hereto until Agent shall have received and accepted an effective assignment agreement from such Person or party in form satisfactory to Agent executed, delivered and fully completed by the applicable parties thereto, and shall have received such other information regarding such assignee as Agent reasonably shall require. The Agent, acting solely for this purpose as an agent of the Borrower, shall maintain at one of its offices in the United States a register for the recordation of the names and addresses of the Lender(s), and the Term Commitments of, and principal amounts (and stated interest) of the Loans owing to, each Lender pursuant to the terms hereof from time to time (the "Register"). The entries in the Register shall be conclusive absent manifest error, and the Borrower, the Agent and the Lender(s) shall treat each Person whose name is recorded in the Register pursuant to the terms hereof as a Lender hereunder for all purposes of this Agreement. The Register shall be available for inspection by the Borrower and any Lender, at any reasonable time and from time to time upon reasonable prior notice.

h. Participations. Each Lender that sells a participation shall, acting solely for this purpose as a non-fiduciary agent of the Borrower, maintain a register on which it enters the name and address of each participant and the principal amounts (and stated interest) of each participant's interest in the Loans or other obligations under the Loan Documents (the

“Participant Register”); provided that no Lender shall have any obligation to disclose all or any portion of the Participant Register (including the identity of any participant or any information relating to a participant's interest in any commitments, loans, its other obligations under any Loan Document) to any Person except to the extent that such disclosure is necessary to establish that such commitment, loan, letter of credit or other obligation is in registered form under Section 5f.103-1(c) of the United States Treasury Regulations. The entries in the Participant Register shall be conclusive absent manifest error, and such Lender shall treat each Person whose name is recorded in the Participant Register as the owner of such participation for all purposes of this Agreement notwithstanding any notice to the contrary. For the avoidance of doubt, the Agent (in its capacity as Agent) shall have no responsibility for maintaining a Participant Register. Borrower agrees that each participant shall be entitled to the benefits of the provisions in Addendum 1 attached hereto (subject to the requirements and limitations therein, including the requirements under Section 7 of Addendum 1 attached hereto (it being understood that the documentation required under Section 7 of Addendum 1 attached hereto shall be delivered to the participating Lender)) to the same extent as if it were a Lender and had acquired its interest by assignment pursuant to Section 11.7; provided that such participant shall not be entitled to receive any greater payment under Addendum 1 attached hereto, with respect to any participation, than its participating Lender would have been entitled to receive, except to the extent such entitlement to receive a greater payment results from a change in law that occurs after the participant acquired the applicable participation.

i. **Governing Law.** This Agreement and the other Loan Documents have been negotiated and delivered to Agent and the Lenders in the State of California, and shall have been accepted by Agent and the Lenders in the State of California. Payment to Agent and the Lenders by Borrower of the Secured Obligations is due in the State of California. This Agreement and the other Loan Documents shall be governed by, and construed and enforced in accordance with, the laws of the State of California, excluding conflict of laws principles that would cause the application of laws of any other jurisdiction.

j. **Consent to Jurisdiction and Venue.** All judicial proceedings (to the extent that the reference requirement of Section 11.11 is not applicable) arising in or under or related to this Agreement or any of the other Loan Documents may be brought in any state or federal court located in the State of California. By execution and delivery of this Agreement, each party hereto generally and unconditionally: (a) consents to nonexclusive personal jurisdiction in Santa Clara County, State of California; (b) waives any objection as to jurisdiction or venue in Santa Clara County, State of California; (c) agrees not to assert any defense based on lack of jurisdiction or venue in the aforesaid courts; and (d) irrevocably agrees to be bound by any judgment rendered thereby in connection with this Agreement or the other Loan Documents. Service of process on any party hereto in any action arising out of or relating to this Agreement shall be effective if given in accordance with the requirements for notice set forth in Section 11.2, and shall be deemed effective and received as set forth in Section 11.2. Nothing herein shall affect the right to serve process in any other manner permitted by law or shall limit the right of either party to bring proceedings in the courts of any other jurisdiction.

k. **Mutual Waiver of Jury Trial / Judicial Reference.**

i. Because disputes arising in connection with complex financial transactions are most quickly and economically resolved by an experienced and expert Person and the parties wish applicable state and federal laws to apply (rather than arbitration rules), the parties desire that their disputes be resolved by a judge applying such applicable laws. EACH OF BORROWER, AGENT AND THE LENDERS SPECIFICALLY WAIVES ANY RIGHT IT MAY HAVE TO TRIAL BY JURY OF ANY CAUSE OF ACTION, CLAIM, CROSS-CLAIM, COUNTERCLAIM, THIRD PARTY CLAIM OR ANY OTHER CLAIM (COLLECTIVELY, "CLAIMS") ASSERTED BY BORROWER AGAINST AGENT, THE LENDERS OR THEIR RESPECTIVE ASSIGNEE OR BY AGENT, THE LENDERS OR THEIR RESPECTIVE ASSIGNEE AGAINST BORROWER. This waiver extends to all such Claims, including Claims that involve Persons other than Agent, Borrower and the Lenders; Claims that arise out of or are in any way connected to the relationship among Borrower, Agent and the Lenders; and any Claims for damages, breach of contract, tort, specific performance, or any equitable or legal relief of any kind, arising out of this Agreement, any other Loan Document.

ii. If the waiver of jury trial set forth in Section 11.11(a) is ineffective or unenforceable, the parties agree that all Claims shall be resolved by reference to a private judge sitting without a jury, pursuant to Code of Civil Procedure Section 638, before a mutually acceptable referee or, if the parties cannot agree, a referee selected by the Presiding Judge of the Santa Clara County, California. Such proceeding shall be conducted in Santa Clara County, California, with California rules of evidence and discovery applicable to such proceeding.

iii. In the event Claims are to be resolved by judicial reference, either party may seek from a court identified in Section 11.10, any prejudgment order, writ or other relief and have such prejudgment order, writ or other relief enforced to the fullest extent permitted by law notwithstanding that all Claims are otherwise subject to resolution by judicial reference.

1. Professional Fees. Borrower promises to pay Agent's and the Lenders' reasonable, documented out-of-pocket fees and expenses necessary to finalize the loan documentation, including but not limited to reasonable, documented attorneys' fees, UCC searches, filing costs, and other miscellaneous expenses. In addition, Borrower promises to pay any and all reasonable, documented out-of-pocket attorneys' and other professionals' fees and expenses incurred by Agent after the Closing Date in connection with or related to: (a) the Loan; (b) the administration, collection, or enforcement of the Loan; (c) the amendment or modification of the Loan Documents; (d) any waiver, consent, release, or termination under the Loan Documents; (e) the protection, preservation, audit, field exam, sale, lease, liquidation, or disposition of Collateral or the exercise of remedies with respect to the Collateral; (f) any legal, litigation, administrative, arbitration, or out of court proceeding in connection with or related to Borrower or the Collateral, and any appeal or review thereof; and (g) any bankruptcy, restructuring, reorganization, assignment for the benefit of creditors, workout, foreclosure, or other action related to Borrower, the Collateral, the Loan Documents, including representing Agent or the Lenders in any adversary proceeding or contested matter commenced or continued by or on behalf of Borrower's estate, and any appeal or review thereof.

m. Confidentiality. Agent and the Lenders acknowledge that certain items of Collateral and information provided to Agent and the Lenders by Borrower, including items provided in connection with the Non-Disclosure Agreement, are confidential and proprietary information of Borrower, if and to the extent such information either (x) is marked as confidential by Borrower at the time of disclosure, or (y) should reasonably be understood to be confidential (the "Confidential Information"). Accordingly, Agent and the Lenders agree that any Confidential Information it may obtain in the course of acquiring, administering, or perfecting Agent's security interest in the Collateral shall not be disclosed to any other Person or entity in any manner whatsoever, in whole or in part, without the prior written consent of Borrower, except that Agent and the Lenders may disclose any such information: (a) to its Affiliates and its partners, investors, lenders, directors, officers, employees, agents, advisors, counsel, accountants, counsel, representative and other professional advisors if Agent or the Lenders in their sole discretion determines that any such party should have access to such information in connection with such party's responsibilities in connection with the Loan or this Agreement and; provided that such recipient of such Confidential Information either (i) agrees to be bound by the confidentiality provisions of this paragraph or (ii) is otherwise subject to confidentiality restrictions that reasonably protect against the disclosure of Confidential Information; (b) if such information is generally available to the public through no fault of Agent or any Lender; (c) if required or appropriate in any report, statement or testimony submitted to any governmental authority having or claiming to have jurisdiction over Agent or the Lenders and any rating agency; (d) if required or appropriate in response to any summons or subpoena or in connection with any litigation, to the extent permitted or deemed advisable by Agent's or the Lenders' counsel; (e) to comply with any legal requirement or law applicable to Agent or the Lenders or demanded by any governmental authority; (f) to the extent reasonably necessary in connection with the exercise of, or preparing to exercise, or the enforcement of, or preparing to enforce, any right or remedy under any Loan Document (including Agent's sale, lease, or other disposition of Collateral after default), or any action or proceeding relating to any Loan Document; (g) to any participant or assignee of Agent or the Lenders or any prospective participant or assignee, provided, that such participant or assignee or prospective participant or assignee is subject to confidentiality restrictions no less stringent than this Section 11.13 and in any event that reasonably protect against the disclosure of Confidential Information; (h) otherwise to the extent consisting of general portfolio information that does not identify Borrower; or (i) otherwise with the prior consent of Borrower; provided, that any disclosure made in violation of this Agreement shall not affect the obligations of Borrower or any of its Affiliates or any guarantor under this Agreement or the other Loan Documents. Agent's and the Lenders' obligations under this Section 11.13 shall supersede all of their respective obligations under the Non-Disclosure Agreement.

n. Assignment of Rights. Borrower acknowledges and understands that Agent or the Lenders may, subject to Section 11.7, sell and assign all or part of its interest hereunder and under the Loan Documents (other than the Warrant which is subject to any assignment, transfer or endorsement provisions therein) to any Person or entity (an "Assignee"). After such assignment the term "Agent" or "Lender" as used in the Loan Documents (other than the Warrant which is subject to any assignment, transfer or endorsement provisions therein) shall mean and include such Assignee, and such Assignee

shall be vested with all rights, powers and remedies of Agent and the Lenders hereunder with respect to the interest so assigned; but with respect to any such interest not so transferred, Agent and the Lenders shall retain all rights, powers and remedies hereby given. No such assignment by Agent or the Lenders shall relieve Borrower of any of its obligations hereunder. the Lenders agrees that in the event of any transfer by it of the promissory note(s) (if any), it will endorse thereon a notation as to the portion of the principal of the promissory note(s), which shall have been paid at the time of such transfer and as to the date to which interest shall have been last paid thereon.

o. Revival of Secured Obligations. This Agreement and the Loan Documents shall remain in full force and effect and continue to be effective if any petition is filed by or against Borrower for liquidation or reorganization, if Borrower becomes insolvent or makes an assignment for the benefit of creditors, if a receiver or trustee is appointed for all or any significant part of Borrower's assets, or if any payment or transfer of Collateral is recovered from Agent or the Lenders. The Loan Documents and the Secured Obligations and Collateral security shall continue to be effective, or shall be revived or reinstated, as the case may be, if at any time payment and performance of the Secured Obligations or any transfer of Collateral to Agent, or any part thereof is rescinded, avoided or avoidable, reduced in amount, or must otherwise be restored or returned by, or is recovered from, Agent, the Lenders or by any obligee of the Secured Obligations, whether as a "voidable preference," "fraudulent conveyance," or otherwise, all as though such payment, performance, or transfer of Collateral had not been made. In the event that any payment, or any part thereof, is rescinded, reduced, avoided, avoidable, restored, returned, or recovered, the Loan Documents and the Secured Obligations shall be deemed, without any further action or documentation, to have been revived and reinstated except to the extent of the full, final, and indefeasible payment to Agent or the Lenders in Cash.

p. Counterparts. This Agreement and any amendments, waivers, consents or supplements hereto may be executed in any number of counterparts, and by different parties hereto in separate counterparts, each of which when so delivered shall be deemed an original, but all of which counterparts shall constitute but one and the same instrument.

q. No Third-Party Beneficiaries. No provisions of the Loan Documents are intended, nor will be interpreted, to provide or create any third-party beneficiary rights or any other rights of any kind in any Person other than Agent, the Lenders and Borrower unless specifically provided otherwise herein, and, except as otherwise so provided, all provisions of the Loan Documents will be personal and solely among Agent, the Lenders and the Borrower.

r. Agency. Agent and each Lender hereby agree to the terms and conditions set forth on Addendum 3 attached hereto. Borrower acknowledges and agrees to the terms and conditions set forth on Addendum 3 attached hereto.

s. Publicity. None of the parties hereto nor any of its respective member businesses and Affiliates shall, without the other parties' prior written consent (which shall not be unreasonably withheld or delayed), publicize or use (a) the other party's name (including a brief description of the relationship among the parties hereto), logo or hyperlink

to such other parties' web site, separately or together, in written and oral presentations, advertising, promotional and marketing materials, client lists, public relations materials or on its web site (together, the "Publicity Materials"); (b) the names of officers of such other parties in the Publicity Materials; and (c) such other parties' name, trademarks, servicemarks in any news or press release concerning such party; provided however, notwithstanding anything to the contrary herein, no such consent shall be required (i) to the extent necessary to comply with the requests of any regulators, legal requirements or laws applicable to such party, pursuant to any listing agreement with any national securities exchange (so long as such party provides prior notice to the other party hereto to the extent reasonably practicable) and (ii) to comply with Section 11.13.

t. Electronic Execution of Certain Other Documents. The words "execution," "execute," "signed," "signature," and words of like import in or related to any document to be signed in connection with this Agreement and the transactions contemplated hereby (including without limitation assignments, assumptions, amendments, waivers and consents) shall be deemed to include electronic signatures, the electronic matching of assignment terms and contract formations on electronic platforms approved by the Agent, or the keeping of records in electronic form, each of which shall be of the same legal effect, validity or enforceability as a manually executed signature or the use of a paper-based recordkeeping system, as the case may be, to the extent and as provided for in any applicable law, including the Federal Electronic Signatures in Global and National Commerce Act, the California Uniform Electronic Transaction Act, or any other similar state laws based on the Uniform Electronic Transactions Act.

(SIGNATURES TO FOLLOW)

IN WITNESS WHEREOF, Borrower, Agent and the Lenders have duly executed and delivered this Loan and Security Agreement as of the day and year first above written.

BORROWER:

AXSOME THERAPEUTICS, INC.

Signature: _____

Print Name: _____

Title: _____

Accepted in Palo Alto, California:

AGENT:

HERCULES CAPITAL, INC.

Signature: _____

Print Name: _____

Title: _____

LENDERS:

HERCULES CAPITAL, INC.

Signature: _____

Print Name: _____

Title: _____

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Exhibit B: Name, Locations, and Other Information for Borrower

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Exhibit D: Borrower's Deposit Accounts and Investment Accounts

Exhibit E: Compliance Certificate

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Exhibit G: [Reserved]

Exhibit H: ACH Debit Authorization Agreement

Exhibit I: [Reserved]

Exhibit J-1: Form of U.S. Tax Compliance Certificate (For Foreign Lenders That Are Not Partnerships For U.S. Federal Income Tax Purposes)

Exhibit J-2: Form of U.S. Tax Compliance Certificate (For Foreign Participants That Are Not Partnerships For U.S. Federal Income Tax Purposes)

Exhibit J-3: Form of U.S. Tax Compliance Certificate (For Foreign Participants That Are Partnerships For U.S. Federal Income Tax Purposes)

Exhibit J-4: Form of U.S. Tax Compliance Certificate (For Foreign Lenders That Are Partnerships For U.S. Federal Income Tax Purposes)

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ADDENDUM 1 to LOAN AND SECURITY AGREEMENT

TAXES; INCREASED COSTS

1. **Defined Terms.** For purposes of this Addendum 1:

- a. “**Connection Income Taxes**” means Other Connection Taxes that are imposed on or measured by net income (however denominated) or that are franchise Taxes or branch profits Taxes.
- b. “**Excluded Taxes**” means any of the following Taxes imposed on or with respect to a Recipient or required to be withheld or deducted from a payment to a Recipient, (i) Taxes imposed on or measured by net income (however denominated), franchise Taxes, and branch profits Taxes, in each case, (A) imposed as a result of such Recipient being organized under the laws of, or having its principal office or, in the case of any Lender, its applicable lending office located in, the jurisdiction imposing such Tax (or any political subdivision thereof) or (B) that are Other Connection Taxes, (ii) in the case of a Lender, U.S. federal withholding Taxes imposed on amounts payable to or for the account of such Lender with respect to an applicable interest in a Loan or Term Commitment pursuant to a law in effect on the date on which (A) such Lender acquires such interest in the Loan or Term Commitment or (B) such Lender changes its lending office, except in each case to the extent that, pursuant to Section 2 or Section 4 of this Addendum 1, amounts with respect to such Taxes were payable either to such Lender’s assignor immediately before such Lender became a party hereto or to such Lender immediately before it changed its lending office, (iii) Taxes attributable to such Recipient’s failure to comply with Section 7 of this Addendum 1 and (iv) any withholding Taxes imposed under FATCA.
- c. “**FATCA**” means Sections 1471 through 1474 of the Code, as of the date of this Agreement (or any amended or successor version that is substantively comparable and not materially more onerous to comply with), any current or future regulations or official interpretations thereof, any agreements entered into pursuant to Section 1471(b)(1) of the Code, and any fiscal or regulatory legislation, rules or practices adopted pursuant to any intergovernmental agreement, treaty or convention among governmental authorities and implementing such Sections of the Code.
- d. “**Foreign Lender**” means a Lender that is not a U.S. Person.
- e. “**Indemnified Taxes**” means (i) Taxes, other than Excluded Taxes, imposed on or with respect to any payment made by or on account of any obligation of the Borrower under any Loan Document and (ii) to the extent not otherwise described in clause (i), Other Taxes.
- f. “**Other Connection Taxes**” means, with respect to any Recipient, Taxes imposed as a result of a present or former connection between such Recipient and the jurisdiction imposing such Tax (other than connections arising from such Recipient having executed, delivered, become a party to, performed its obligations under, received payments under, received or perfected a security interest under, engaged in any other

transaction pursuant to or enforced any Loan Document, or sold or assigned an interest in any Loan or Loan Document).

- g. “**Other Taxes**” means all present or future stamp, court or documentary, intangible, recording, filing or similar Taxes that arise from any payment made under, from the execution, delivery, performance, enforcement or registration of, from the receipt or perfection of a security interest under, or otherwise with respect to, any Loan Document, except any such Taxes that are Other Connection Taxes imposed with respect to an assignment.
 - h. “**Recipient**” means the Agent or any Lender, as applicable.
 - i. “**Withholding Agent**” means the Borrower and the Agent.
2. **Payments Free of Taxes.** Any and all payments by or on account of any obligation of the Borrower under any Loan Document (other than the Warrant) shall be made without deduction or withholding for any Taxes, except as required by applicable law. If any applicable law (as determined in the good faith discretion of an applicable Withholding Agent) requires the deduction or withholding of any Tax from any such payment by a Withholding Agent, then the applicable Withholding Agent shall be entitled to make such deduction or withholding and shall timely pay the full amount deducted or withheld to the relevant governmental authority in accordance with applicable law and, if such Tax is an Indemnified Tax, then the sum payable by the Borrower shall be increased as necessary so that after such deduction or withholding has been made (including such deductions and withholdings applicable to additional sums payable under this Section 2 or Section 4 of this Addendum 1) the applicable Recipient receives an amount equal to the sum it would have received had no such deduction or withholding been made.
3. **Payment of Other Taxes by Borrower.** The Borrower shall timely pay to the relevant governmental authority in accordance with applicable law, or at the option of the Agent timely reimburse it for the payment of, any Other Taxes.
4. **Indemnification by Borrower.** The Borrower shall indemnify each Recipient, within 10 days after demand therefor, for the full amount of any Indemnified Taxes (including Indemnified Taxes imposed or asserted on or attributable to amounts payable under Section 2 of this Addendum 1 or this Section 4) payable or paid by such Recipient or required to be withheld or deducted from a payment to such Recipient and any reasonable expenses arising therefrom or with respect thereto, whether or not such Indemnified Taxes were correctly or legally imposed or asserted by the relevant governmental authority. A certificate as to the amount of such payment or liability delivered to the Borrower by a Lender (with a copy to the Agent), or by the Agent on its own behalf or on behalf of a Lender, shall be conclusive absent manifest error.
5. **Indemnification by the Lenders.** Each Lender shall severally indemnify the Agent, within 10 days after demand therefor, for (a) any Indemnified Taxes attributable to such Lender (but only to the extent that the Borrower has not already indemnified the Agent for such Indemnified Taxes and without limiting the obligation of the Borrower to do so), (b) any

Taxes attributable to such Lender's failure to comply with the provisions of Section 11.8 of the Agreement relating to the maintenance of a Participant Register and (c) any Excluded Taxes attributable to such Lender, in each case, that are payable or paid by the Agent in connection with any Loan Document, and any reasonable expenses arising therefrom or with respect thereto, whether or not such Taxes were correctly or legally imposed or asserted by the relevant governmental authority. A certificate as to the amount of such payment or liability delivered to any Lender by the Agent shall be conclusive absent manifest error. Each Lender hereby authorizes the Agent to set off and apply any and all amounts at any time owing to such Lender under any Loan Document or otherwise payable by the Agent to the Lender from any other source against any amount due to the Agent under this Section 5.

6. **Evidence of Payments.** As soon as practicable after any payment of Taxes by the Borrower to a governmental authority pursuant to the provisions of this Addendum 1, the Borrower shall deliver to the Agent the original or a certified copy of a receipt issued by such governmental authority evidencing such payment, a copy of the return reporting such payment or other evidence of such payment reasonably satisfactory to the Agent.
7. **Status of Lenders.**
 - a. Any Lender that is entitled to an exemption from or reduction of withholding Tax with respect to payments made under any Loan Document shall deliver to the Borrower and the Agent, at the time or times reasonably requested by the Borrower or the Agent, such properly completed and executed documentation reasonably requested by the Borrower or the Agent as will permit such payments to be made without withholding or at a reduced rate of withholding. In addition, any Lender, if reasonably requested by the Borrower or the Agent, shall deliver such other documentation prescribed by applicable law or reasonably requested by the Borrower or the Agent as will enable the Borrower or the Agent to determine whether or not such Lender is subject to backup withholding or information reporting requirements. Notwithstanding anything to the contrary in the preceding two sentences, the completion, execution and submission of such documentation (other than such documentation set forth in Sections 7(b)(i), 7(b)(ii) and 7(b)(iv) of this Addendum 1) shall not be required if in the Lender's reasonable judgment such completion, execution or submission would subject such Lender to any material unreimbursed cost or expense or would materially prejudice the legal or commercial position of such Lender.
 - b. Without limiting the generality of the foregoing, in the event that the Borrower is a U.S. Person,
 - i. any Lender that is a U.S. Person shall deliver to the Borrower and the Agent on or prior to the date on which such Lender becomes a Lender under this Agreement (and from time to time thereafter upon the reasonable request of the Borrower or the Agent), executed copies of IRS Form W-9 certifying that such Lender is exempt from U.S. federal backup withholding tax;
 - ii. any Foreign Lender shall, to the extent it is legally entitled to do so, deliver to the Borrower and the Agent (in such number of copies as shall be requested

by the recipient) on or prior to the date on which such Foreign Lender becomes a Lender under this Agreement (and from time to time thereafter upon the reasonable request of the Borrower or the Agent), whichever of the following is applicable:

- A. in the case of a Foreign Lender claiming the benefits of an income tax treaty to which the United States is a party (x) with respect to payments of interest under any Loan Document, executed copies of IRS Form W-8BEN or IRS Form W-8BEN-E establishing an exemption from, or reduction of, U.S. federal withholding Tax pursuant to the “interest” article of such tax treaty and (y) with respect to any other applicable payments under any Loan Document, IRS Form W-8BEN or IRS Form W-8BEN-E establishing an exemption from, or reduction of, U.S. federal withholding Tax pursuant to the “business profits” or “other income” article of such tax treaty;
 - B. executed copies of IRS Form W-8ECI;
 - C. in the case of a Foreign Lender claiming the benefits of the exemption for portfolio interest under Section 881(c) of the Code, (x) a certificate substantially in the form of Exhibit J-1 to the effect that such Foreign Lender is not a “bank” within the meaning of Section 881(c)(3)(A) of the Code, a “10 percent shareholder” of the Borrower within the meaning of Section 871(h)(3)(B) of the Code, or a “controlled foreign corporation” related to the Borrower as described in Section 881(c)(3)(C) of the Code (a “**U.S. Tax Compliance Certificate**”) and (y) executed copies of IRS Form W-8BEN or IRS Form W-8BEN-E; or
 - D. to the extent a Foreign Lender is not the beneficial owner, executed copies of IRS Form W-8IMY, accompanied by IRS Form W-8ECI, IRS Form W-8BEN, IRS Form W-8BEN-E, a U.S. Tax Compliance Certificate substantially in the form of Exhibit J-2 or Exhibit J-3, IRS Form W-9, and/or other certification documents from each beneficial owner, as applicable; provided that if the Foreign Lender is a partnership and one or more direct or indirect partners of such Foreign Lender are claiming the portfolio interest exemption, such Foreign Lender may provide a U.S. Tax Compliance Certificate substantially in the form of Exhibit J-4 on behalf of each such direct and indirect partner;
- iii any Foreign Lender shall, to the extent it is legally entitled to do so, deliver to the Borrower and the Agent (in such number of copies as shall be requested by the recipient) on or prior to the date on which such Foreign Lender becomes a Lender under this Agreement (and from time to time thereafter upon the reasonable request of the Borrower or the Agent), executed copies of any other form prescribed by applicable law as a basis for claiming exemption from or a

reduction in U.S. federal withholding Tax, duly completed, together with such supplementary documentation as may be prescribed by applicable law to permit the Borrower or the Agent to determine the withholding or deduction required to be made; and

iv. if a payment made to a Lender under any Loan Document would be subject to U.S. federal withholding Tax imposed by FATCA if such Lender were to fail to comply with the applicable reporting requirements of FATCA (including those contained in Section 1471(b) or 1472(b) of the Code, as applicable), such Lender shall deliver to the Borrower and the Agent at the time or times prescribed by law and at such time or times reasonably requested by the Borrower or the Agent such documentation prescribed by applicable law (including as prescribed by Section 1471(b)(3)(C)(i) of the Code) and such additional documentation reasonably requested by the Borrower or the Agent as may be necessary for the Borrower and the Agent to comply with their obligations under FATCA and to determine that such Lender has complied with such Lender's obligations under FATCA or to determine the amount, if any, to deduct and withhold from such payment. Solely for purposes of this clause (iv), "FATCA" shall include any amendments made to FATCA after the date of this Agreement.

c. Each Lender agrees that if any form or certification it previously delivered expires or becomes obsolete or inaccurate in any respect, it shall update such form or certification or promptly notify the Borrower and the Agent in writing of its legal inability to do so.

8. **Treatment of Certain Refunds.** If any party determines, in its sole discretion exercised in good faith, that it has received a refund of any Taxes as to which it has been indemnified pursuant to the provisions of this Addendum 1 (including by the payment of additional amounts pursuant to the provisions of this Addendum 1), it shall pay to the indemnifying party an amount equal to such refund (but only to the extent of indemnity payments made under the provisions of this Addendum 1 with respect to the Taxes giving rise to such refund), net of all out-of-pocket expenses (including Taxes) of such indemnified party and without interest (other than any interest paid by the relevant governmental authority with respect to such refund). Such indemnifying party, upon the request of such indemnified party, shall repay to such indemnified party the amount paid over pursuant to this Section 8 (plus any penalties, interest or other charges imposed by the relevant governmental authority) in the event that such indemnified party is required to repay such refund to such governmental authority. Notwithstanding anything to the contrary in this Section 8, in no event will the indemnified party be required to pay any amount to an indemnifying party pursuant to this Section 8 the payment of which would place the indemnified party in a less favorable net after-Tax position than the indemnified party would have been in if the Tax subject to indemnification and giving rise to such refund had not been deducted, withheld or otherwise imposed and the indemnification payments or additional amounts with respect to such Tax had never been paid. This Section 8 shall not be construed to require any indemnified party to make available its Tax returns (or any other information relating to its Taxes that it deems confidential) to the indemnifying party or any other Person.

9. **Increased Costs.** If any change in applicable law shall subject any Recipient to any Taxes (other than (A) Indemnified Taxes, (B) Taxes described in clauses (ii) through (iv) of the definition of Excluded Taxes and (C) Connection Income Taxes) on its loans, loan principal, commitments, or other obligations, or its deposits, reserves, other liabilities or capital attributable thereto, and the result shall be to increase the cost to such Recipient of making, converting to, continuing or maintaining any Term Loan or of maintaining its obligation to make any such Loan, or to reduce the amount of any sum received or receivable by such Recipient (whether of principal, interest or any other amount), then, upon the request of such Recipient, the Borrower will pay to such Recipient such additional amount or amounts as will compensate such Recipient for such additional costs incurred or reduction suffered.
10. **Mitigation.** If any Lender requires the Borrower to pay any Indemnified Taxes or additional amounts pursuant to this Addendum, then such Lender shall (at the request of the Borrower) use reasonable efforts to designate a different lending office for funding or booking its Loans hereunder or to assign its rights and obligations hereunder to another of its branches, offices, or affiliates, if, in the judgment of such Lender, such designation or assignment: (i) would eliminate or reduce amounts payable pursuant to this Addendum in the future, and (ii) would not subject such Lender to any unreimbursed cost or expense and would not otherwise be disadvantageous to such Lender. The Borrower hereby agrees to pay all reasonable costs and expenses incurred by any Lender in connection with such designation or assignment.
11. **Survival.** Each party's obligations under the provisions of this Addendum 1 (including any inchoate indemnity obligations and any other obligations which, by their terms, are to survive the termination of the Loan Documents) shall survive the resignation or replacement of the Agent or any assignment of rights by, or the replacement of, a Lender, the termination of the Term Commitments and the repayment, satisfaction or discharge of all obligations under any Loan Document (other than the Warrant).

ADDENDUM 2 to LOAN AND SECURITY AGREEMENT

[Reserved.]

IF "1" = "1" "WEST\296323106.2" "" WEST\296323106.2

ADDENDUM 3 to LOAN AND SECURITY AGREEMENT

Agent and Lender Terms

(a) Each Lender hereby irrevocably appoints Hercules Capital, Inc. to act on its behalf as the Agent hereunder and under the other Loan Documents (other than the Warrant) and authorizes the Agent to take such actions on its behalf and to exercise such powers as are delegated to the Agent by the terms hereof or thereof, together with such actions and powers as are reasonably incidental thereto.

(b) Each Lender agrees to indemnify the Agent in its capacity as such (to the extent not reimbursed by Borrower and without limiting the obligation of Borrower to do so), according to its respective Term Commitment percentages (based upon the total outstanding Term Commitments) in effect on the date on which indemnification is sought under this Addendum 3, from and against any and all liabilities, obligations, losses, damages, penalties, actions, judgments, suits, costs, expenses or disbursements of any kind whatsoever that may at any time be imposed on, incurred by or asserted against the Agent in any way relating to or arising out of, this Agreement, any of the other Loan Documents (other than the Warrant) or any documents contemplated by or referred to herein or therein (other than the Warrant) or the transactions contemplated hereby or thereby or any action taken or omitted by the Agent under or in connection with any of the foregoing; The agreements in this Section shall survive the payment of the Loans and all other amounts payable hereunder.

(c) Agent in Its Individual Capacity. The Person serving as the Agent hereunder shall have the same rights and powers in its capacity as a Lender as any other Lender and may exercise the same as though it were not the Agent and the term "Lender" shall, unless otherwise expressly indicated or unless the context otherwise requires, include each such Person serving as Agent hereunder in its individual capacity.

(d) Exculpatory Provisions. The Agent shall have no duties or obligations except those expressly set forth herein and in the other Loan Documents. Without limiting the generality of the foregoing, the Agent shall not:

- (i) be subject to any fiduciary or other implied duties, regardless of whether any default or any Event of Default has occurred and is continuing;
- (ii) have any duty to take any discretionary action or exercise any discretionary powers, except discretionary rights and powers expressly contemplated hereby or by the other Loan Documents that the Agent is required to exercise as directed in writing by the Lenders; provided that the Agent shall not be required to take any action that, in its opinion or the opinion of its counsel, may expose the Agent to liability or that is contrary to any Loan Document or applicable law; and
- (iii) except as expressly set forth herein and in the other Loan Documents, have any duty to disclose, and the Agent shall not be liable for the failure to disclose, any information relating to the Borrower or any of its

Affiliates that is communicated to or obtained by any Person serving as the Agent or any of its Affiliates in any capacity.

(e) The Agent shall not be liable for any action taken or not taken by it (i) with the consent or at the request of the Lenders or as the Agent shall believe in good faith shall be necessary, under the circumstances or (ii) in the absence of its own gross negligence or willful misconduct.

(f) The Agent shall not be responsible for or have any duty to ascertain or inquire into (i) any statement, warranty or representation made in or in connection with this Agreement or any other Loan Document, (ii) the contents of any certificate, report or other document delivered hereunder or thereunder or in connection herewith or therewith, (iii) the performance or observance of any of the covenants, agreements or other terms or conditions set forth herein or therein or the occurrence of any default or Event of Default, (iv) the validity, enforceability, effectiveness or genuineness of this Agreement, any other Loan Document or any other agreement, instrument or document or (v) the satisfaction of any condition set forth in Section 4 or elsewhere herein, other than to confirm receipt of items expressly required to be delivered to the Agent. Reliance by Agent. Agent may rely, and shall be fully protected in acting, or refraining to act, upon, any resolution, statement, certificate, instrument, opinion, report, notice, request, consent, order, bond or other paper or document that it has no reason to believe to be other than genuine and to have been signed or presented by the proper party or parties or, in the case of cables, telecopies and telexes, to have been sent by the proper party or parties. In the absence of its gross negligence or willful misconduct, Agent may conclusively rely, as to the truth of the statements and the correctness of the opinions expressed therein, upon any certificates or opinions furnished to Agent and conforming to the requirements of this Agreement or any of the other Loan Documents. Agent may consult with counsel, and any opinion or legal advice of such counsel shall be full and complete authorization and protection in respect of any action taken, not taken or suffered by Agent hereunder or under any Loan Documents in accordance therewith. Agent shall have the right at any time to seek instructions concerning the administration of the Collateral from any court of competent jurisdiction. Agent shall not be under any obligation to exercise any of the rights or powers granted to Agent by this Agreement and the other Loan Documents at the request or direction of the Lenders unless Agent shall have been provided by the Lenders with adequate security and indemnity against the costs, expenses and liabilities that may be incurred by it in compliance with such request or direction.

EXHIBIT A
ADVANCE REQUEST

To: Agent: Date: _____, 2006

Hercules Capital, Inc. (the "Agent")
400 Hamilton Avenue, Suite 310
Palo Alto, CA 94301
email: legal@htgc.com
Attn:

Axsome Therapeutics, Inc. ("Borrower") hereby requests from Hercules Capital, Inc. ("Lender") an Advance in the amount of _____ Dollars (\$ _____) (the "Advance Amount") on _____, _____ (the "Advance Date") pursuant to the Loan and Security Agreement, dated September 25, 2020 among Borrower, Agent and the Lender (the "Agreement"). Capitalized words and other terms used but not otherwise defined herein are used with the same meanings as defined in the Agreement.

Please:

(a) Issue a check payable to Borrower _____

or

(b) Wire Funds to Borrower's account _____ [IF FILED PUBLICLY, ACCOUNT INFO REDACTED FOR SECURITY PURPOSES]

Bank: _____
Address: _____

ABA Number: _____
Account Number: _____
Account Name: _____
Contact Person: _____
Phone Number _____
To Verify Wire Info: _____
Email address: _____

Borrower represents that the conditions precedent to the Advance set forth in the Agreement are satisfied or waived and shall be satisfied upon the making of such Advance, including but not limited to: (i) that no event that has had or could reasonably be expected to have a Material Adverse Effect has occurred and is continuing; (ii) that the representations and warranties set forth in the Agreement and in the Warrant are and shall be true and correct in all material respects on and as of the Advance Date with the same effect as though made on and as of such date, except to the extent such representations and warranties expressly relate to an earlier date; (iii) that Borrower is in compliance with all the terms and provisions set forth in each Loan Document on its part to be observed or performed; and (iv) that as of the Advance Date, no fact or

condition exists that could (or could, with the passage of time, the giving of notice, or both) constitute an Event of Default under the Loan Documents. Borrower understands and acknowledges that Agent has the right to review the financial information supporting this representation and, based upon such review in its sole but reasonable discretion, the Lender may decline to fund the requested Advance.

Borrower hereby represents that Borrower's corporate status and locations have not changed since the date of the Agreement or, if the Attachment 1 to this Advance Request is completed, are as set forth in the Attachment to this Advance Request.

With respect to any Advances requested under Tranche 4, Borrower represents and warrants that the information provided on Attachment 2 to this Advance Request is true and correct in all respects.

Borrower agrees to notify Agent promptly before the funding of the Loan if any of the matters which have been represented above shall not be true and correct on the Advance Date and if Agent has received no such notice before the Advance Date then the statements set forth above shall be deemed to have been made and shall be deemed to be true and correct as of the Advance Date.

Executed as of [], 20[].

BORROWER: AXSOME THERAPEUTICS, INC.

SIGNATURE: _____

TITLE: _____

PRINT NAME: _____

ATTACHMENT 1 TO ADVANCE REQUEST

Dated: _____

Borrower hereby represents and warrants to Agent that Borrower’s current name and organizational status is as follows:

Name: [_____]
Type of organization: [_____]
State of organization: [_____]
Organization file number: [_____]

Borrower hereby represents and warrants to Agent that the street addresses, cities, states and postal codes of its current locations are as follows:

[_____]

Borrower hereby represents and warrants to Agent that the Advance Amount does not exceed the Maximum Term Loan Amount as follows:

- a. Advance Amount: \$ _____
- b. Maximum Term Loan Amount: \$300,000,000
- c. Is clause a. less than or equal to clause b.?

Yes/Compliant _____ No/Non-Compliant _____

EXHIBIT B

NAME, LOCATIONS, AND OTHER INFORMATION FOR BORROWER

1. Borrower represents and warrants to Agent that Borrower's current name and organizational status as of the Closing Date is as follows:

Name: []

Type of organization: []

State of organization: []

Organization file number: []

2. Borrower represents and warrants to Agent that for five (5) years prior to the Closing Date, Borrower did not do business under any other name or organization or form except the following:

Name:

Used during dates of:

Type of Organization:

State of organization:

Organization file Number:

Borrower's fiscal year ends on _____

Borrower's federal employer tax identification number is: _____

3. Borrower represents and warrants to Agent that its chief executive office is located at _____.

EXHIBIT C

BORROWER'S PATENTS, TRADEMARKS, COPYRIGHTS AND LICENSES

||US-DOCS\129794038.5||

EXHIBIT D

BORROWER'S DEPOSIT ACCOUNTS AND INVESTMENT ACCOUNTS

||US-DOCS\129794038.5||

EXHIBIT E

COMPLIANCE CERTIFICATE

Hercules Capital, Inc. (as “Agent”)
400 Hamilton Avenue, Suite 310
Palo Alto, CA 94301

Reference is made to that certain Loan and Security Agreement dated September 25, 2020 and the Loan Documents (as defined therein) entered into in connection with such Loan and Security Agreement all as may be amended from time to time (hereinafter referred to collectively as the “Loan Agreement”) by and among Hercules Capital, Inc. (the “Agent”), the several banks and other financial institutions or entities from time to time party thereto (collectively, the “Lender”) and Axxome Therapeutics, Inc. (the “Company”) and each of its Subsidiaries (as defined therein) other than Excluded Subsidiaries (as defined therein), as Borrower. All capitalized terms not defined herein shall have the same meaning as defined in the Loan Agreement.

The undersigned is an Officer of the Company, knowledgeable of all Company financial matters, and is authorized to provide certification of information regarding the Company; hereby certifies, in such capacity, that in accordance with the terms and conditions of the Loan Agreement, the Company is in compliance for the period ending _____ of all covenants, conditions and terms and hereby reaffirms that all representations and warranties contained therein are true and correct on and as of the date of this Compliance Certificate with the same effect as though made on and as of such date, except to the extent such representations and warranties expressly relate to an earlier date, after giving effect in all cases to any standard(s) of materiality contained in the Loan Agreement as to such representations and warranties. Attached are the required documents supporting the above certification. The undersigned further certifies that these are prepared in accordance with GAAP (except for the absence of footnotes with respect to unaudited financial statement and subject to normal year-end adjustments) and are consistent from one period to the next except as explained below.

REPORTING REQUIREMENT	REQUIRED	CHECK IF ATTACHED
Interim Financial Statements	Monthly within 30 days	
Interim Financial Statements	Quarterly within 45 days	
Audited Financial Statements	FYE within 90 days	
Accounts Receivable and Payable Agings	Monthly within 30 days	
Intellectual Property	Following registering new Intellectual Property or the acquisition thereof (<i>Section 7.21 of Loan Agreement</i>)	
Restricted License	Following entering into or becoming bound by new Restricted Licenses (<i>Section 7.21 of Loan Agreement</i>)	

Section 5.9 – Intellectual Property

Has any claim been made to Borrower that any material part of the Intellectual Property violates the rights of any third party? Yes _____
No _____

Section 5.11 – Borrower Products

(a) To Borrower’s knowledge, is any material Intellectual Property owned by Borrower or any Borrower Product subject to any actual or, to the knowledge of Borrower, threatened in writing litigation, proceeding (including any proceeding in the United States Patent and Trademark Office or any corresponding foreign office or agency) or outstanding decree, order, judgment, settlement agreement or stipulation that restricts in any manner Borrower’s use, transfer or licensing thereof or that could reasonably be expected to affect the validity, use or enforceability thereof? Yes _____ No _____

(b) Has Borrower received any written notice or claim, or, to the knowledge of Borrower, oral notice or claim, challenging or questioning Borrower’s ownership in any Intellectual Property material to Borrower’s business (or written notice of any claim challenging or questioning the ownership in any licensed Intellectual Property material to Borrower’s business of the owner thereof) or suggesting that any third party has any claim of legal or beneficial ownership with respect thereto or, to Borrower’s knowledge, is there a reasonable basis for any such claim? Yes _____ No _____

ACCOUNTS OF BORROWER AND ITS SUBSIDIARIES AND AFFILIATES

The undersigned hereby also confirms the below disclosed accounts represent all depository accounts and securities accounts presently open in the name of each Borrower or Borrower's Subsidiary/Affiliate, as applicable.

Each new account that has been opened since delivery of the previous Compliance Certificate is designated below with a "*".

[US-DOCS\129794038.5]

		Depository AC #	Financial Institution	Account Type (Depository / Securities)	Last Month Ending Account Balance	Purpose of Account
BORROWER						
Name/Address:						
	1					
	2					
	3					
	4					
	5					
	6					
	7					
SUBSIDIARY / AFFILIATE						
Name/Address						
	1					
	2					
	3					
	4					
	5					
	6					
	7					

Section 7.20 - Financial Covenants

Financial Covenant	Required	Actual	In Compliance?
Minimum Cash <i>Section 7.20(a)(i) of the Loan Agreement</i>	Greater than or equal to the sum of \$40,000,000 <i>plus</i> the Qualified Cash A/P Amount; provided that beginning on the AXS-05 Milestone Date, such sum shall be greater than or equal to \$25,000,000 <i>plus</i> the Qualified Cash A/P Amount	[]	Yes No N/A
Performance Covenant A <i>Section 7.20(b) of the Loan Agreement</i>	(i) Borrower's Market Capitalization exceeds One Billion Dollars (\$1,000,000,000) and (ii) Borrower maintains Qualified Cash in an amount not less than fifty percent (50%) of the sum of the outstanding principal amount of the Term Loan Advances <i>plus</i> the Qualified Cash A/P Amount	[]	Yes No N/A
Performance Covenant B <i>Section 7.20(b) of the Loan Agreement</i>	Borrower maintains Qualified Cash in an amount not less than eighty five percent (85%) of the sum of the outstanding principal amount of the Term Loan Advances <i>plus</i> the Qualified Cash A/P Amount	[]	Yes No N/A
Performance Covenant C <i>Section 7.20(b) of the Loan Agreement</i>	Borrower achieves T6M Net Product Revenue of at least 60% of the T6M Net Product Revenue included in the Forecast, determined on a quarterly basis	[]	Yes No N/A

Is Borrower complying with at least one Performance Covenant? Yes _____ No _____ N/A _____

Section 7.21 – Intellectual Property.

Has Borrower filed any application for any Patent or the registration of any Copyright, mask work or Trademark, or acquired any new registered Trademark since the last reported period? Yes _____ No _____

If yes: Borrower shall supplement such intellectual property security agreements and or other documents as needed to maintain a first priority perfected security interest in favor of Agent within 90 days of the date hereof.

Very Truly Yours,

AXSOME THERAPEUTICS, INC.

By: _____

Name: _____

Its: _____

EXHIBIT F

FORM OF JOINDER AGREEMENT

This Joinder Agreement (the "Joinder Agreement") is made and dated as of [], 20[], and is entered into by and between _____, a _____ corporation ("Subsidiary"), and HERCULES CAPITAL, INC., a Maryland corporation (as "Agent").

RECITALS

A. Subsidiary's Affiliate, Axsome Therapeutics, Inc. ("Company") has entered into that certain Loan and Security Agreement dated September 25, 2020, with the several banks and other financial institutions or entities from time to time party thereto as lender (collectively, the "Lenders") and the Agent, as such agreement may be amended (the "Loan Agreement"), together with the other agreements executed and delivered in connection therewith;

B. Subsidiary acknowledges and agrees that it will benefit both directly and indirectly from Company's execution of the Loan Agreement and the other agreements executed and delivered in connection therewith;

AGREEMENT

NOW THEREFORE, Subsidiary and Agent agree as follows:

1. The recitals set forth above are incorporated into and made part of this Joinder Agreement. Capitalized terms not defined herein shall have the meaning provided in the Loan Agreement.
2. By signing this Joinder Agreement, Subsidiary shall be bound by the terms and conditions of the Loan Agreement the same as if it were the Borrower (as defined in the Loan Agreement) under the Loan Agreement, mutatis mutandis, provided however, that (a) with respect to (i) Section 5.1 of the Loan Agreement, Subsidiary represents that it is an entity duly organized, legally existing and in good standing under the laws of [], (b) neither Agent nor the Lenders shall have any duties, responsibilities or obligations to Subsidiary arising under or related to the Loan Agreement or the other Loan Documents, (c) that if Subsidiary is covered by Company's insurance, Subsidiary shall not be required to maintain separate insurance or comply with the provisions of Sections 6.1 and 6.2 of the Loan Agreement, and (d) that as long as Company satisfies the requirements of Section 7.1 of the Loan Agreement, Subsidiary shall not have to provide Agent separate Financial Statements. To the extent that Agent or the Lenders has any duties, responsibilities or obligations arising under or related to the Loan Agreement or the other Loan Documents, those duties, responsibilities or obligations shall flow only to Company and not to Subsidiary or any other Person or entity. By way of example (and not an exclusive list): (i) Agent's providing notice to Company in accordance with the Loan Agreement or as otherwise agreed among Company, Agent and the Lenders shall be deemed provided to Subsidiary; (ii) a Lender's providing an Advance to Company shall be deemed an Advance to Subsidiary; and (iii) Subsidiary shall have no right to request an Advance or make any other demand on the Lenders.

3. Subsidiary agrees not to certificate its equity securities without Agent's prior written consent, which consent may be conditioned on the delivery of such equity securities to Agent in order to perfect Agent's security interest in such equity securities.
4. Subsidiary acknowledges that it benefits, both directly and indirectly, from the Loan Agreement, and hereby waives, for itself and on behalf on any and all successors in interest (including without limitation any assignee for the benefit of creditors, receiver, bankruptcy trustee or itself as debtor-in-possession under any bankruptcy proceeding) to the fullest extent provided by law, any and all claims, rights or defenses to the enforcement of this Joinder Agreement on the basis that (a) it failed to receive adequate consideration for the execution and delivery of this Joinder Agreement or (b) its obligations under this Joinder Agreement are avoidable as a fraudulent conveyance.
5. As security for the prompt, complete and indefeasible payment when due (whether on the payment dates or otherwise) of all the Secured Obligations, Subsidiary grants to Agent a security interest in all of Subsidiary's right, title, and interest in and to the Collateral.

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EXHIBIT J-1

FORM OF U.S. TAX COMPLIANCE CERTIFICATE

(For Foreign Lenders That Are Not Partnerships For U.S. Federal Income Tax Purposes)

Reference is hereby made to the Loan and Security Agreement dated as of _____, 20__ (as amended, supplemented or otherwise modified from time to time, the "Loan Agreement") by and among Axsome Therapeutics, Inc., a Delaware corporation and each of its Subsidiaries (as defined in the Loan Agreement) other than Excluded Subsidiaries (as defined in the Loan Agreement) (hereinafter collectively referred to as the "Borrower"), the several banks and other financial institutions or entities from time to time parties to the Loan Agreement (collectively, referred to as the "Lenders"), and HERCULES CAPITAL, INC., a Maryland corporation, in its capacity as administrative agent and collateral agent for itself and the Lenders (in such capacity, the "Agent").

Pursuant to the provisions of Addendum 1 of the Loan Agreement, the undersigned hereby certifies that (i) it is the sole record and beneficial owner of the Loan(s) (as well as any promissory note(s) evidencing such Loan(s)) in respect of which it is providing this certificate, (ii) it is not a "bank" within the meaning of Section 881(c)(3)(A) of the Code, (iii) it is not a "ten percent shareholder" of the Borrower within the meaning of Section 871(h)(3)(B) of the Code and (iv) it is not a "controlled foreign corporation" related to the Borrower as described in Section 881(c)(3)(C) of the Code.

The undersigned has furnished the Agent and the Borrower with a certificate of its non-U.S. Person status on IRS Form W-8BEN or IRS Form W-8BEN-E. By executing this certificate, the undersigned agrees that (1) if the information provided in this certificate changes, the undersigned shall promptly so inform the Borrower and the Agent, and (2) the undersigned shall have at all times furnished the Borrower and the Agent with a properly completed and currently effective certificate in either the calendar year in which each payment is to be made to the undersigned, or in either of the two calendar years preceding such payments.

Unless otherwise defined herein, terms defined in the Loan Agreement and used herein shall have the meanings given to them in the Loan Agreement.

Date: _____, 20__ [NAME OF LENDER]

By: _____
Name: _____
Title: _____

EXHIBIT J-2

FORM OF U.S. TAX COMPLIANCE CERTIFICATE

(For Foreign Participants That Are Not Partnerships For U.S. Federal Income Tax Purposes)

Reference is hereby made to the Loan and Security Agreement dated as of _____, 20__ (as amended, supplemented or otherwise modified from time to time, the "Loan Agreement") by and among Axsome Therapeutics, Inc., a Delaware corporation and each of its Subsidiaries (as defined in the Loan Agreement) other than Excluded Subsidiaries (as defined in the Loan Agreement) (hereinafter collectively referred to as the "Borrower"), the several banks and other financial institutions or entities from time to time parties to the Loan Agreement (collectively, referred to as the "Lenders"), and HERCULES CAPITAL, INC., a Maryland corporation, in its capacity as administrative agent and collateral agent for itself and the Lenders (in such capacity, the "Agent").

Pursuant to the provisions of Addendum 1 of the Loan Agreement, the undersigned hereby certifies that (i) it is the sole record and beneficial owner of the participation in respect of which it is providing this certificate, (ii) it is not a "bank" within the meaning of Section 881(c)(3)(A) of the Code, (iii) it is not a "ten percent shareholder" of the Borrower within the meaning of Section 871(h)(3)(B) of the Code and (iv) it is not a "controlled foreign corporation" related to the Borrower as described in Section 881(c)(3)(C) of the Code.

The undersigned has furnished its participating Lender with a certificate of its non-U.S. Person status on IRS Form W-8BEN or IRS Form W-8BEN-E. By executing this certificate, the undersigned agrees that (1) if the information provided in this certificate changes, the undersigned shall promptly so inform such Lender in writing, and (2) the undersigned shall have at all times furnished such Lender with a properly completed and currently effective certificate in either the calendar year in which each payment is to be made to the undersigned, or in either of the two calendar years preceding such payments.

Unless otherwise defined herein, terms defined in the Loan Agreement and used herein shall have the meanings given to them in the Loan Agreement.

Date: _____, 20__ [NAME OF PARTICIPANT]

By: _____
Name: _____
Title: _____

EXHIBIT J-3

FORM OF U.S. TAX COMPLIANCE CERTIFICATE

(For Foreign Participants That Are Partnerships For U.S. Federal Income Tax Purposes)

Reference is hereby made to the Loan and Security Agreement dated as of _____, 20__ (as amended, supplemented or otherwise modified from time to time, the "Loan Agreement") by and among Axsome Therapeutics, Inc., a Delaware corporation and each of its Subsidiaries (as defined in the Loan Agreement) other than Excluded Subsidiaries (as defined in the Loan Agreement) (hereinafter collectively referred to as the "Borrower"), the several banks and other financial institutions or entities from time to time parties to the Loan Agreement (collectively, referred to as the "Lenders"), and HERCULES CAPITAL, INC., a Maryland corporation, in its capacity as administrative agent and collateral agent for itself and the Lenders (in such capacity, the "Agent").

Pursuant to the provisions of Addendum 1 of the Loan Agreement, the undersigned hereby certifies that (i) it is the sole record owner of the participation in respect of which it is providing this certificate, (ii) its direct or indirect partners/members are the sole beneficial owners of such participation, (iii) with respect to such participation, neither the undersigned nor any of its direct or indirect partners/members is a "bank" extending credit pursuant to a loan agreement entered into in the ordinary course of its trade or business within the meaning of Section 881(c)(3)(A) of the Code, (iv) none of its direct or indirect partners/members is a "ten percent shareholder" of the Borrower within the meaning of Section 871(h)(3)(B) of the Code and (v) none of its direct or indirect partners/members is a "controlled foreign corporation" related to the Borrower as described in Section 881(c)(3)(C) of the Code.

The undersigned has furnished its participating Lender with IRS Form W-8IMY accompanied by one of the following forms from each of its partners/members that is claiming the portfolio interest exemption: (i) an IRS Form W-8BEN or IRS Form W-8BEN-E or (ii) an IRS Form W-8IMY accompanied by an IRS Form W-8BEN or IRS Form W-8BEN-E from each of such partner's/member's beneficial owners that is claiming the portfolio interest exemption. By executing this certificate, the undersigned agrees that (1) if the information provided in this certificate changes, the undersigned shall promptly so inform such Lender and (2) the undersigned shall have at all times furnished such Lender with a properly completed and currently effective certificate in either the calendar year in which each payment is to be made to the undersigned, or in either of the two calendar years preceding such payments.

Unless otherwise defined herein, terms defined in the Loan Agreement and used herein shall have the meanings given to them in the Loan Agreement.

Date: _____, 20__ [NAME OF PARTICIPANT]

By: _____
Name: _____
Title: _____

EXHIBIT J-4

FORM OF U.S. TAX COMPLIANCE CERTIFICATE

(For Foreign Lenders That Are Partnerships For U.S. Federal Income Tax Purposes)

Reference is hereby made to the Loan and Security Agreement dated as of _____, 20__ (as amended, supplemented or otherwise modified from time to time, the "Loan Agreement") by and among Axsome Therapeutics, Inc., a Delaware corporation and each of its Subsidiaries (as defined in the Loan Agreement) other than Excluded Subsidiaries (as defined in the Loan Agreement) (hereinafter collectively referred to as the "Borrower"), the several banks and other financial institutions or entities from time to time parties to the Loan Agreement (collectively, referred to as the "Lenders"), and HERCULES CAPITAL, INC., a Maryland corporation, in its capacity as administrative agent and collateral agent for itself and the Lenders (in such capacity, the "Agent").

Pursuant to the provisions of Addendum 1 of the Loan Agreement, the undersigned hereby certifies that (i) it is the sole record owner of the Loan(s) (as well as any promissory note(s) evidencing such Loan(s)) in respect of which it is providing this certificate, (ii) its direct or indirect partners/members are the sole beneficial owners of such Loan(s) (as well as any promissory note(s) evidencing such Loan(s)), (iii) with respect to the extension of credit pursuant to this Loan Agreement or any other Loan Document, neither the undersigned nor any of its direct or indirect partners/members is a "bank" extending credit pursuant to a loan agreement entered into in the ordinary course of its trade or business within the meaning of Section 881(c)(3)(A) of the Code, (iv) none of its direct or indirect partners/members is a "ten percent shareholder" of the Borrower within the meaning of Section 871(h)(3)(B) of the Code and (v) none of its direct or indirect partners/members is a "controlled foreign corporation" related to the Borrower as described in Section 881(c)(3)(C) of the Code.

The undersigned has furnished the Agent and the Borrower with IRS Form W-8IMY accompanied by one of the following forms from each of its partners/members that is claiming the portfolio interest exemption: (i) an IRS Form W-8BEN or IRS Form W-8BEN-E or (ii) an IRS Form W-8IMY accompanied by an IRS Form W-8BEN or IRS Form W-8BEN-E from each of such partner's/member's beneficial owners that is claiming the portfolio interest exemption. By executing this certificate, the undersigned agrees that (1) if the information provided in this certificate changes, the undersigned shall promptly so inform the Borrower and the Agent, and (2) the undersigned shall have at all times furnished the Borrower and the Agent with a properly completed and currently effective certificate in either the calendar year in which each payment is to be made to the undersigned, or in either of the two calendar years preceding such payments.

Unless otherwise defined herein, terms defined in the Loan Agreement and used herein shall have the meanings given to them in the Loan Agreement.

Date: _____, 20__ [NAME OF LENDER]

By: _____
Name: _____
Title: _____

EXHIBIT K

FORM OF WARRANT

THIS WARRANT AND THE SHARES ISSUABLE UPON EXERCISE HEREOF HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), OR ANY STATE SECURITIES LAWS, AND MAY NOT BE SOLD, OFFERED FOR SALE, PLEDGED, OR HYPOTHECATED IN THE ABSENCE OF AN EFFECTIVE REGISTRATION STATEMENT RELATED THERETO OR, SUBJECT TO SECTION 11 HEREOF, AN OPINION OF COUNSEL IN A FORM SATISFACTORY TO THE COMPANY THAT SUCH REGISTRATION IS NOT REQUIRED UNDER THE ACT, OR ANY APPLICABLE STATE SECURITIES LAWS.

WARRANT AGREEMENT

To Purchase Shares of the Common Stock of

AXSOME THERAPEUTICS, INC.

Dated as of [] (the "Effective Date")

WHEREAS, Axsome Therapeutics, Inc., a Delaware corporation (the "Company"), has entered into a Loan and Security Agreement, dated September 25, 2020 (as amended and in effect from time to time, the "Loan Agreement") with Hercules Capital, Inc., a Maryland corporation (the "Warrantholder"), in its capacity as administrative agent, and the lender parties thereto;

WHEREAS, pursuant to the Loan Agreement and as additional consideration to the Warrantholder for, among other things, its agreements in the Loan Agreement, the Company has agreed to issue to the Warrantholder this Warrant Agreement, evidencing the right to purchase shares of the Company's Common Stock (this "Warrant", "Warrant Agreement", or this "Agreement");

NOW, THEREFORE, in consideration of the Warrantholder having executed and delivered the Loan Agreement and provided the financial accommodations contemplated therein, and in consideration of the mutual covenants and agreements contained herein, the Company and Warrantholder agree as follows:

SECTION 1. GRANT OF THE RIGHT TO PURCHASE COMMON STOCK.

(a) For value received, the Company hereby grants to the Warrantholder, and the Warrantholder is entitled, upon the terms and subject to the conditions hereinafter set forth, to subscribe for and purchase, from the Company, up to the number of fully paid and non-assessable shares of Common Stock (as defined below) as determined pursuant to Section 1(b) below, at a purchase price per share equal to the Exercise Price (as defined below). The number and Exercise Price of such shares are subject to adjustment as provided in Section 8. As used herein, the following terms shall have the following meanings:

"Act" means the Securities Act of 1933, as amended.

“Charter” means the Company’s Certificate of Incorporation, as may be amended and in effect from time to time.

“Common Stock” means the Company’s common stock, \$0.0001 par value per share, as presently constituted under the Charter, and any class and/or series of Company capital stock for or into which such common stock may be converted or exchanged in a reorganization, recapitalization or similar transaction.

“Exercise Price” means \$[•]⁶, subject to adjustment from time to time in accordance with the provisions of this Warrant.

“Liquid Sale” means the closing of a Merger Event in which the consideration received by the Company and/or its stockholders, as applicable, consists solely of cash and/or Marketable Securities.

“Marketable Securities” in connection with a Merger Event means securities meeting all of the following requirements: (i) the issuer thereof is then subject to the reporting requirements of Section 13 or Section 15(d) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), and is then current in its filing of all required reports and other information under the Act and the Exchange Act; (ii) the class and series of shares or other security of the issuer that would be received by the Warrantholder in connection with the Merger Event were the Warrantholder to exercise this Warrant on or prior to the closing thereof is then traded on a national securities exchange or over-the-counter market, and (iii) following the closing of such Merger Event, Warrantholder would not be restricted from publicly re-selling all of the issuer’s shares and/or other securities that would be received by Warrantholder in such Merger Event were Warrantholder to exercise this Warrant in full on or prior to the closing of such Merger Event, except to the extent that any such restriction (x) arises solely under federal or state securities laws, rules or regulations, and (y) does not extend beyond six (6) months from the closing of such Merger Event.

“Merger Event” means any of the following: (i) a sale, lease or other transfer of all or substantially all assets of the Company, (ii) any merger or consolidation involving the Company in which the Company is not the surviving entity or in which the outstanding shares of the Company’s capital stock are otherwise converted into or exchanged for shares of capital stock or other securities or property of another entity, or (iii) any sale by holders of the outstanding voting equity securities of the Company in a single transaction or series of related transactions of shares constituting a majority of the outstanding combined voting power of the Company.

“Purchase Price” means, with respect to any exercise of this Warrant, an amount equal to the then-effective Exercise Price multiplied by the number of shares of Common Stock as to which this Warrant is then exercised.

“Warrant Coverage” means [•]⁷.

⁶ NTD: To equal the 10-day volume weighted average price of the Common Stock at the time of the applicable Term Loan Advance and issuance of this Warrant.

⁷ NTD: To equal 2.50% times the aggregate principal amount of the applicable Term Loan Advance.

(b) Number of Shares. This Warrant shall be exercisable for a number of shares of Common Stock equal to the quotient derived by dividing (i) the Warrant Coverage by (ii) the Exercise Price, subject to adjustment from time to time in accordance with the provisions of this Warrant.

SECTION 2. TERM OF THE AGREEMENT.

The term of this Agreement and the right to purchase Common Stock as granted herein shall commence on the Effective Date and, subject to Section 8(a) below, shall be exercisable for a period ending upon the seventh (7th) anniversary of the Effective Date.

SECTION 3. EXERCISE OF THE PURCHASE RIGHTS.

(a) Exercise. The purchase rights set forth in this Agreement are exercisable by the Warrantholder, in whole or in part, at any time, or from time to time, prior to the expiration of the term set forth in Section 2, by tendering to the Company at its principal office a notice of exercise in the form attached hereto as Exhibit I (the "Notice of Exercise"), duly completed and executed. Promptly upon receipt of the Notice of Exercise and the payment of the Purchase Price in accordance with the terms set forth below, and in no event later than three (3) business days thereafter, the Company shall issue to the Warrantholder, via book entry, the number of shares of Common Stock purchased and shall execute the acknowledgment of exercise in the form attached hereto as Exhibit II (the "Acknowledgment of Exercise") indicating the number of shares which remain subject to future purchases under this Warrant, if any.

The Purchase Price may be paid at the Warrantholder's election either (i) by cash or check, or (ii) by surrender of all or a portion of the Warrant for shares of Common Stock to be exercised under this Agreement and, if applicable, an amended Agreement setting forth the remaining number of shares purchasable hereunder, as determined below ("Net Issuance"). If the Warrantholder elects the Net Issuance method, the Company will issue shares of Common Stock in accordance with the following formula:

$$X = \frac{Y(A-B)}{A}$$

Where: X = the number of shares of Common Stock to be issued to the Warrantholder.

Y = the number of shares of Common Stock requested to be exercised under this Agreement.

A = the then-current fair market value of one (1) share of Common Stock at the time of exercise.

B = the then-effective Exercise Price.

For purposes of the above calculation, the current fair market value of shares of Common Stock shall mean with respect to each share of Common Stock:

(i) at all times when the Common Stock shall be traded on a national securities exchange, inter-dealer quotation system or over-the-counter bulletin board service, the fair market value of one (1) share of Common Stock shall be deemed to be the prior day closing price before the day the current fair market value of the securities is being determined;

(ii) if the exercise is in connection with a Merger Event, the fair market value of a share of Common Stock shall be deemed to be the per share value received by the holders of the

outstanding shares of Common Stock pursuant to such Merger Event as determined in accordance with the definitive transaction documents executed among the parties in connection therewith; or

(iii) in cases other than as described in the foregoing clauses (i) and (ii), the current fair market value of a share of Common Stock shall be determined in good faith by the Company's Board of Directors.

Upon partial exercise by either cash or Net Issuance, prior to the expiration or earlier termination hereof, the Company shall promptly amend this Agreement to reflect the remaining number of shares and/or other securities purchasable hereunder. All other terms and conditions of such amended Agreement shall be identical to those contained herein, including, but not limited to the Effective Date hereof.

(b) Exercise Prior to Expiration. To the extent this Warrant is not previously exercised as to all shares subject hereto, and if the then-current fair market value of one share of Common Stock is greater than the Exercise Price then in effect, or, in the case of a Liquid Sale, where the value per share of Common Stock (as determined as of the closing of such Liquid Sale in accordance with the definitive agreements executed by the parties in connection with such Merger Event) to be paid to the holders thereof is greater than the Exercise Price then in effect, this Agreement shall be deemed automatically exercised on a Net Issuance basis pursuant to Section 3(a) (even if not surrendered) as of immediately before its expiration determined in accordance with Section 2. For purposes of such automatic exercise, the fair market value of one share of Common Stock upon such expiration shall be determined pursuant to Section 3(a). To the extent this Warrant or any portion hereof is deemed automatically exercised pursuant to this Section 3(b), the Company agrees to promptly notify the Warrantholder, upon written request, of the number of shares of Common Stock if any, the Warrantholder is to receive by reason of such automatic exercise, and shall issue the Warrantholder such shares via book entry.

SECTION 4. RESERVATION OF SHARES.

During the term of this Agreement, the Company will at all times have authorized and reserved a sufficient number of shares of its Common Stock to provide for the exercise of the rights to purchase Common Stock as provided for herein.

SECTION 5. NO FRACTIONAL SHARES OR SCRIP.

No fractional shares or scrip representing fractional shares shall be issued upon the exercise of this Agreement, but in lieu of such fractional shares the Company shall make a cash payment therefor upon the basis of the then fair market value of one share of Common Stock.

SECTION 6. NO RIGHTS AS STOCKHOLDER.

Without limitation of any provision hereof, Warrantholder agrees that this Agreement does not entitle the Warrantholder to any voting rights or other rights as a stockholder of the Company prior to the exercise of any of the purchase rights set forth in this Agreement.

SECTION 7. WARRANTHOLDER REGISTRY.

The Company shall maintain a registry showing the name and address of the registered holder of this Agreement. Warrantholder's initial address, for purposes of such registry, is set forth in Section 12(g) below. Warrantholder may change such address by giving written notice of such changed address to the Company.

SECTION 8. ADJUSTMENT RIGHTS.

The Exercise Price and the number of shares of Common Stock purchasable hereunder are subject to adjustment from time to time, as follows:

Merger Event. In connection with a Merger Event that is a Liquid Sale, this Warrant shall, on and after the closing thereof, automatically and without further action on the part of any party or other person, represent the right to receive the consideration payable on or in respect of all shares of Common Stock that are issuable hereunder as of immediately prior to the closing of such Merger Event less the Purchase Price for all such shares of Common Stock (such consideration to include both the consideration payable at the closing of such Merger Event and all deferred consideration payable thereafter, if any, including, but not limited to, payments of amounts deposited at such closing into escrow and payments in the nature of earn-outs, milestone payments or other performance-based payments, subject to the terms of the definitive agreements governing the Merger Event), and such Merger Event consideration shall be paid to Warrantholder as and when it is paid to the holders of the outstanding shares of Common Stock. In connection with a Merger Event that is not a Liquid Sale, the Company shall cause the successor or surviving entity to assume this Warrant and the obligations of the Company hereunder on the closing thereof, and, thereafter this Warrant shall be exercisable for the same number and type of securities or other property as the Warrantholder would have received in consideration for the shares of Common Stock issuable hereunder had it exercised this Warrant in full as of immediately prior to such closing, at an aggregate Exercise Price no greater than the aggregate Exercise Price in effect as of immediately prior to such closing, and subject to further adjustment from time to time in accordance with the provisions of this Warrant. The provisions of this Section 8(a) shall similarly apply to successive Merger Events.

Reclassification of Shares. Except for Merger Events subject to Section 8(a), if the Company at any time shall, by combination, reclassification, exchange or subdivision of securities or otherwise, change any of the securities as to which purchase rights under this Agreement exist into the same or a different number of securities of any other class or classes of securities, this Agreement shall thereafter represent the right to acquire such number and kind of securities as would have been issuable as the result of such change with respect to the securities which were subject to the purchase rights under this Agreement immediately prior to such combination, reclassification, exchange, subdivision or other change. The provisions of this Section 8(b) shall similarly apply to successive combination, reclassification, exchange, subdivision or other change.

Subdivision or Combination of Shares. If the Company at any time shall combine or subdivide its Common Stock, (i) in the case of a subdivision, the Exercise Price shall be proportionately decreased and the number of shares for which this Warrant is exercisable shall be proportionately increased, or (ii) in the case of a combination, the Exercise Price shall be proportionately increased and the number of shares for which this Warrant is exercisable shall be proportionately decreased.

Stock Dividends. If the Company at any time while this Agreement is outstanding and unexpired shall:

pay a dividend with respect to the outstanding shares of Common Stock payable in additional shares of Common Stock, then the Exercise Price shall be adjusted, to that price determined by multiplying the Exercise Price in effect immediately prior to such date of determination by a fraction (A) the numerator of which shall be the total number of shares of Common Stock outstanding immediately prior to such dividend or distribution, and (B) the denominator of which shall be the total number of shares of Common Stock outstanding immediately after such dividend or distribution, and the

number of shares of Common Stock for which this Warrant is exercisable shall be proportionately increased; or

make any other dividend or distribution on or with respect to Common Stock, except any dividend or distribution (A) in cash, or (B) specifically provided for in any other clause of this Section 8, then, in each such case, provision shall be made by the Company such that the Warrantholder shall receive upon exercise or conversion of this Warrant a proportionate share of any such dividend or distribution as though it were the holder of the Common Stock (or other stock for which the Common Stock is convertible) as of the record date fixed for the determination of the stockholders of the Company entitled to receive such dividend or distribution.

(e) Notice of Certain Events. If: (i) the Company shall declare any dividend or distribution upon its outstanding Common Stock, payable in stock, cash, property or other securities (provided that Warrantholder in its capacity as lender under the Loan Agreement consents to such dividend); (ii) the Company shall offer for subscription pro rata to the holders of its Common Stock any additional shares of stock of any class or other rights; (iii) there shall be any Merger Event; or (iv) there shall be any voluntary dissolution, liquidation or winding up of the Company; then, in connection with each such event, the Company shall give the Warrantholder notice thereof at the same time and in the same manner as it gives notice thereof to the holders of outstanding Common Stock.

SECTION 9. REPRESENTATIONS, WARRANTIES AND COVENANTS OF THE COMPANY.

(a) Reservation of Common Stock. The Company covenants and agrees that all shares of Common Stock, if any, that may be issued upon the exercise of the rights represented by this Warrant will, upon issuance, be validly issued and outstanding, fully paid and non-assessable. The Company further covenants and agrees that the Company will, at all times during the term hereof, have authorized and reserved, free from preemptive rights, a sufficient number of shares of Common Stock to provide for the exercise of the rights represented by this Warrant. If at any time during the term hereof the number of authorized but unissued shares of Common Stock shall not be sufficient to permit exercise of this Warrant in full, the Company will take such corporate action as may, in the opinion of its counsel, be necessary to increase its authorized but unissued shares of Common Stock to such number of shares as shall be sufficient for such purposes.

(b) Due Authority. The execution and delivery by the Company of this Agreement and the performance of all obligations of the Company hereunder, including the issuance to Warrantholder of the right to acquire the shares of Common Stock, have been duly authorized by all necessary corporate action on the part of the Company. This Agreement: (1) does not violate the Company's Charter or current bylaws; (2) does not contravene any law or governmental rule, regulation or order applicable to it; and (3) does not and will not contravene any provision of, or constitute a default under, any indenture, mortgage, contract or other instrument to which it is a party or by which it is bound. This Agreement constitutes a legal, valid and binding agreement of the Company, enforceable in accordance with its terms, except as may be limited by bankruptcy, insolvency, reorganization, moratorium or similar laws relating to or affecting creditors' rights generally (including, without limitation, fraudulent conveyance laws) and by general principles of equity, regardless of whether considered in a proceeding in equity or at law.

(c) Consents and Approvals. No consent or approval of, giving of notice to, registration with, or taking of any other action in respect of any state, federal or other governmental authority or agency is required with respect to the execution, delivery and performance by the Company of its obligations under this Agreement, except for the filing of notices pursuant to Regulation D under the Act and any filing required by applicable state securities law, which filings will be effective by the time required thereby.

(d) Exempt Transaction. Subject to the accuracy of the Warrantholder's representations in Section 10, the issuance of the Common Stock upon exercise of this Agreement will constitute a transaction exempt from (i) the registration requirements of Section 5 of the Act, in reliance upon Section 4(a)(2) thereof, and (ii) the qualification requirements of the applicable state securities laws.

(e) Information Rights. At all times (if any) prior to the expiration or earlier termination of this Warrant, when the Company shall not be required to file reports pursuant to Section 13 or 15(d) of the Exchange Act or shall not have timely filed all such required reports, Warrantholder shall be entitled to the information rights contained in Sections 7.1(b) and 7.1(c) of the Loan Agreement, provided that the confidentiality provisions contained in Section 11.13 of the Loan Agreement shall apply to any information received under this section, and in any such event Sections 7.1(b), 7.1(c) and 11.13 of the Loan Agreement are hereby incorporated into this Agreement by this reference as though fully set forth herein. In receiving any such information, Warrantholder shall at all times comply with all securities laws applicable to the resale of this Warrant or the shares of Common Stock issuable upon exercise of this Warrant, including relevant insider trading laws.

(f) Rule 144 Compliance. The Company shall, at all times prior to the earlier to occur of (x) the date of sale or other disposition by Warrantholder of this Warrant or all shares of Common Stock issued on exercise of this Warrant, or (y) the expiration or earlier termination of this Warrant if the Warrant has not been exercised in full or in part on such date, use all commercially reasonable efforts to timely file all reports required under the 1934 Act and otherwise timely take all actions necessary to permit the Warrantholder to sell or otherwise dispose of this Warrant and the shares of Common Stock issued on exercise hereof pursuant to Rule 144 promulgated under the Act as amended and in effect from time to time, provided that the foregoing shall not apply in the event of a Merger Event following which the successor or surviving entity is not subject to the reporting requirements of the 1934 Act. If the Warrantholder proposes to sell Common Stock issuable upon the exercise of this Agreement in compliance with Rule 144, then, upon Warrantholder's written request to the Company, the Company shall furnish to the Warrantholder, within five (5) business days after receipt of such request, a written statement confirming the Company's compliance with the filing and other requirements of such Rule.

SECTION 10. REPRESENTATIONS AND COVENANTS OF THE WARRANTHOLDER.

This Agreement has been entered into by the Company in reliance upon the following representations and covenants of the Warrantholder:

(a) Investment Purpose. This Warrant and the shares issued on exercise hereof will be acquired for investment and not with a view to the sale or distribution of any part thereof in violation of applicable federal and state securities laws, and the Warrantholder has no present intention of selling or engaging in any public distribution of the same except pursuant to a registration or exemption.

(a) Private Issue. The Warrantholder understands (i) that the Common Stock issuable upon exercise of this Agreement is not, as of the Effective Date, registered under the Act or qualified under applicable state securities laws on the grounds that the issuance contemplated by this Agreement will be exempt from the registration and qualifications requirements thereof, and (ii) that the Company's reliance on exemption from such registration is predicated on the representations set forth in this Section 10.

(b) Financial Risk. The Warrantholder has such knowledge and experience in financial and business matters as to be capable of evaluating the merits and risks of its investment, and has the ability to bear the economic risks of its investment.

(c) Accredited Investor. Warrantholder is an "accredited investor" within the meaning of Rule 501 of Regulation D promulgated under the Act, as presently in effect ("Regulation D").

(d) No Short Sales. Warrantholder has not at any time on or prior to the Effective Date engaged in any short sales or equivalent transactions in the Common Stock. Warrantholder agrees that at all times from and after the Effective Date and on or before the expiration or earlier termination of this Warrant, it shall not engage in any short sales or equivalent transactions in the Common Stock.

SECTION 11. TRANSFERS.

Subject to compliance with applicable federal and state securities laws, this Agreement and all rights hereunder are transferable, in whole or in part, without charge to the holder hereof (except for transfer taxes) upon surrender of this Agreement properly endorsed. Each taker and holder of this Agreement, by taking or holding the same, consents and agrees that this Agreement, when endorsed in blank, shall be deemed negotiable, and that the holder hereof, when this Agreement shall have been so endorsed and its transfer recorded on the Company's books, shall be treated by the Company and all other persons dealing with this Agreement as the absolute owner hereof for any purpose and as the person entitled to exercise the rights represented by this Agreement. The transfer of this Agreement shall be recorded on the books of the Company upon receipt by the Company of a notice of transfer in the form attached hereto as Exhibit III (the "Transfer Notice"), at its principal offices and the payment to the Company of all transfer taxes and other governmental charges imposed on such transfer. Until the Company receives such Transfer Notice, the Company may treat the registered owner hereof as the owner for all purposes. Notwithstanding anything herein or in any legend to the contrary, the Company shall not require an opinion of counsel in connection with any sale, assignment or other transfer by Warrantholder of this Warrant (or any portion hereof or any interest herein) or of any shares of Common Stock issued upon any exercise hereof to an affiliate (as defined in Regulation D) of Warrantholder, provided that such affiliate is an "accredited investor" as defined in Regulation D.

SECTION 12. MISCELLANEOUS.

(a) Effective Date. The provisions of this Agreement shall be construed and shall be given effect in all respects as if it had been executed and delivered by the Company on the date hereof. This Agreement shall be binding upon any successors or assigns of the Company.

(b) Remedies. In the event of any default hereunder, the non-defaulting party may proceed to protect and enforce its rights either by suit in equity and/or by action at law, including but not limited to an action for damages as a result of any such default, and/or an action for specific performance for any default where Warrantholder will not have an adequate remedy at law and where damages will not be readily ascertainable. The Company expressly agrees that it shall not oppose an application by the Warrantholder or any other person entitled to the benefit of this Agreement requiring specific performance of any or all provisions hereof or enjoining the Company from continuing to commit any such breach of this Agreement.

(c) No Impairment of Rights. The Company will not, by amendment of its Charter or through any other means, avoid or seek to avoid the observance or performance of any of the terms of this Agreement, but will at all times in good faith assist in the carrying out of all such terms and in the taking of all such actions as may be necessary or appropriate in order to protect the rights of the Warrantholder against impairment.

(d) Additional Documents. In the event the Company shall not be required to file reports pursuant to Section 13 or 15(d) of the Exchange Act or shall not have timely filed all such required reports, the Company agrees to supply such other documents as the Warrantholder may from time to time reasonably request to value this Warrant for Warrantholder's accounting or reporting requirements and/or to evaluate whether to exercise (in cash or a net issuance basis) this Warrant.

(a) Attorneys' Fees. In any litigation, arbitration or court proceeding between the Company and the Warrantholder relating hereto, the prevailing party shall be entitled to reasonable attorneys' fees and

expenses and all costs of proceedings incurred in enforcing this Agreement. For the purposes of this Section 12(e), attorneys' fees shall include without limitation reasonable fees incurred in connection with the following: (i) contempt proceedings; (ii) discovery; (iii) any motion, proceeding or other activity of any kind in connection with an insolvency proceeding; (iv) garnishment, levy, and debtor and third party examinations; and (v) post-judgment motions and proceedings of any kind, including without limitation any activity taken to collect or enforce any judgment.

(f) Severability. In the event any one or more of the provisions of this Agreement shall for any reason be held invalid, illegal or unenforceable, the remaining provisions of this Agreement shall be unimpaired, and the invalid, illegal or unenforceable provision shall be replaced by a mutually acceptable valid, legal and enforceable provision, which comes closest to the intention of the parties underlying the invalid, illegal or unenforceable provision.

(g) Notices. Except as otherwise provided herein, any notice, demand, request, consent, approval, declaration, service of process or other communication that is required, contemplated, or permitted under this Agreement or with respect to the subject matter hereof shall be in writing, and shall be deemed to have been validly served, given, delivered, and received upon the earlier of: (a) personal delivery to the party to be notified, (b) when sent by confirmed telex, electronic transmission or facsimile if sent during normal business hours of the recipient, if not, then on the next business day, (c) five days after having been sent by registered or certified mail, return receipt requested, postage prepaid, or (d) one day after deposit with a nationally recognized overnight courier, specifying next day delivery, with written verification of receipt, and shall be addressed to the party to be notified as follows:

If to the Warrantholder:

HERCULES CAPITAL, INC.
Legal Department
Attention: Chief Legal Officer and Michael Dutra
400 Hamilton Avenue, Suite 310
Palo Alto, CA 94301
Facsimile: 650-473-9194
Telephone: 650-289-3060

With a copy to (which shall not constitute notice):

LATHAM & WATKINS LLP
505 Montgomery Street, Suite 2000
San Francisco, CA 94111
Attn: Haim Zaltzman
Facsimile: 415-395-8095
Telephone: 415-395-8870

If to the Company:

AXSOME THERAPEUTICS, INC.
Attention: Chief Financial Officer
22 Cortlandt Street, 16th Floor
New York, New York

With a copy to (which shall not constitute notice):

DLA PIPER LLP (US)
51 John F. Kennedy Pkwy, Suite 120
Short Hills, NJ 07078

or to such other address as each party may designate for itself by like notice.

(h) Entire Agreement; Amendments. This Agreement constitutes the entire agreement and understanding of the parties hereto in respect of the subject matter hereof, and supersedes and replaces in their entirety any prior proposals, term sheets, letters, negotiations or other documents or agreements, whether written or oral, with respect to the subject matter hereof (including the Warrantholder's proposal letter dated September 2, 2020). None of the terms of this Agreement may be amended except by an instrument executed by each of the parties hereto.

(i) Headings. The various headings in this Agreement are inserted for convenience only and shall not affect the meaning or interpretation of this Agreement or any provisions hereof.

(j) Advice of Counsel. Each of the parties represents to each other party hereto that it has discussed (or had an opportunity to discuss) with its counsel this Agreement and, specifically, the provisions of Sections 12(n), 12(o), 12(p), 12(q) and 12(r).

(k) No Strict Construction. The parties hereto have participated jointly in the negotiation and drafting of this Agreement. In the event an ambiguity or question of intent or interpretation arises, this Agreement shall be construed as if drafted jointly by the parties hereto and no presumption or burden of proof shall arise favoring or disfavoring any party by virtue of the authorship of any provisions of this Agreement.

(l) No Waiver. No omission or delay by Warrantholder at any time to enforce any right or remedy reserved to it, or to require performance of any of the terms, covenants or provisions hereof by Warrantholder at any time designated, shall be a waiver of any such right or remedy to which Warrantholder is entitled, nor shall it in any way affect the right of Warrantholder to enforce such provisions thereafter during the term of this Agreement.

(m) Survival. All agreements, representations and warranties contained in this Agreement or in any document delivered pursuant hereto shall be for the benefit of Warrantholder and shall survive the execution and delivery of this Agreement and the expiration or other termination of this Agreement.

(n) Governing Law. This Agreement has been negotiated and delivered to Warrantholder in the State of California, and shall be deemed to have been accepted by Warrantholder in the State of California. Delivery of Common Stock to Warrantholder by the Company under this Agreement is due in the State of California. This Agreement shall be governed by, and construed and enforced in accordance with, the laws of the State of California, excluding conflict of laws principles that would cause the application of laws of any other jurisdiction.

(o) Consent to Jurisdiction and Venue. All judicial proceedings arising in or under or related to this Agreement may be brought in any state or federal court of competent jurisdiction located in the State of California. By execution and delivery of this Agreement, each party hereto generally and unconditionally: (i) consents to personal jurisdiction in Santa Clara County, State of California; (ii) waives any objection as to jurisdiction or venue in Santa Clara County, State of California; (iii) agrees not to assert any defense based on lack of jurisdiction or venue in the aforesaid courts; and (iv) irrevocably agrees to be bound by any judgment rendered thereby in connection with this Agreement. Service of process on any party hereto in any action arising out of or relating to this Agreement shall be effective if given in accordance with the requirements for notice set forth in Section 12(g), and shall be deemed effective and received as set forth in Section 12(g). Nothing herein shall affect the right to serve process

in any other manner permitted by law or shall limit the right of either party to bring proceedings in the courts of any other jurisdiction.

(p) Mutual Waiver of Jury Trial. Because disputes arising in connection with complex financial transactions are most quickly and economically resolved by an experienced and expert person and the parties wish applicable state and federal laws to apply (rather than arbitration rules), the parties desire that their disputes arising under or in connection with this Warrant be resolved by a judge applying such applicable laws. EACH OF THE COMPANY AND WARRANTHOLDER SPECIFICALLY WAIVES ANY RIGHT IT MAY HAVE TO TRIAL BY JURY OF ANY CAUSE OF ACTION, CLAIM, CROSS-CLAIM, COUNTERCLAIM, THIRD PARTY CLAIM OR ANY OTHER CLAIM (COLLECTIVELY, "CLAIMS") ASSERTED BY THE COMPANY AGAINST WARRANTHOLDER OR ITS ASSIGNEE OR BY WARRANTHOLDER OR ITS ASSIGNEE AGAINST THE COMPANY RELATING TO THIS WARRANT. This waiver extends to all such Claims, including Claims that involve persons or entities other the Company and Warrantholder; Claims that arise out of or are in any way connected to the relationship between the Company and Warrantholder; and any Claims for damages, breach of contract, specific performance, or any equitable or legal relief of any kind, arising out of this Agreement.

(q) Judicial Reference. If the waiver of jury trial set forth above is ineffective or unenforceable, the parties agree that all Claims shall be resolved by reference to a private judge sitting without a jury before a mutually acceptable referee.

(r) Pre-arbitration Relief. In the event Claims are to be resolved by arbitration, either party may seek from a court of competent jurisdiction identified in Section 12(o), any prejudgment order, writ or other relief and have such prejudgment order, writ or other relief enforced to the fullest extent permitted by law notwithstanding that all Claims are otherwise subject to resolution by judicial reference.

(s) Counterparts. This Agreement and any amendments, waivers, consents or supplements hereto may be executed in any number of counterparts (including by facsimile or electronic delivery (PDF), and by different parties hereto in separate counterparts, each of which when so delivered shall be deemed an original, but all of which counterparts shall constitute but one and the same instrument.

(t) Specific Performance. The parties hereto hereby declare that it is impossible to measure in money the damages which will accrue to Warrantholder by reason of the Company's failure to perform any of the obligations under this Agreement and agree that the terms of this Agreement shall be specifically enforceable by Warrantholder. If Warrantholder institutes any action or proceeding to specifically enforce the provisions hereof, any person against whom such action or proceeding is brought hereby waives the claim or defense therein that Warrantholder has an adequate remedy at law, and such person shall not offer in any such action or proceeding the claim or defense that such remedy at law exists.

(u) Lost, Stolen, Mutilated or Destroyed Warrant. If this Warrant is lost, stolen, mutilated or destroyed, the Company may, on such terms as to indemnity or otherwise as it may reasonably impose (which shall, in the case of a mutilated Warrant, include the surrender thereof), issue a new Warrant of like denomination and tenor as this Warrant so lost, stolen, mutilated or destroyed. Any such new Warrant shall constitute an original contractual obligation of the Company, whether or not the allegedly lost, stolen, mutilated or destroyed Warrant shall be at any time enforceable by anyone.

(v) Legends. To the extent required by applicable laws, this Warrant and the shares of Common Stock issuable hereunder (and the securities issuable, directly or indirectly, upon conversion of such shares of Common Stock, if any) may be imprinted with a restricted securities legend in substantially the following form:

THIS SECURITY HAS NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), OR ANY APPLICABLE STATE SECURITIES LAWS, AND

MAY NOT BE SOLD, PLEDGED OR OTHERWISE TRANSFERRED WITHOUT AN EFFECTIVE REGISTRATION THEREOF UNDER THE ACT AND ANY APPLICABLE STATE SECURITIES LAWS, OR PURSUANT TO RULE 144 OR AN EXEMPTION FROM THE REGISTRATION REQUIREMENTS OF THE ACT AND ANY APPLICABLE STATE SECURITIES LAWS.

[Remainder of Page Intentionally Left Blank]

IN WITNESS WHEREOF, the parties hereto have caused this Warrant Agreement to be executed by its officers thereunto duly authorized as of the Effective Date.

COMPANY:

AXSOME THERAPEUTICS, INC.

By:
Name:
Title:

WARRANTHOLDER:

HERCULES CAPITAL, INC.

By:
Name:
Title:

SCHEDULE 1.1

COMMITMENTS

LENDERS	TRANCHE 1A TERM COMMITMENT	TRANCHE 1B TERM COMMITMENT	TRANCHE 2A TERM COMMITMENT	TRANCHE 2B TERM COMMITMENT	TRANCHE 2C TERM COMMITMENT*	TRANCHE 3A TERM COMMITMENT	TRANCHE 3B TERM COMMITMENT*	TRANCHE 4 TERM COMMITMENT	TRANCHE 5 TERM COMMITMENT*	TERM COMMITMENT*
Hercules Capital, Inc.	\$50,000,000	\$31,725,000	\$24,675,000	\$24,675,000	\$30,000,000*	\$10,575,000	\$5,000,000*	\$50,000,000*	\$35,000,000*	\$261,650,000
Hercules Private Credit Fund I L.P.	\$0	\$7,650,000	\$5,950,000	\$5,950,000	\$0	\$2,550,000	\$0	\$0	\$0	\$22,100,000
Hercules Private Global Venture Growth Fund I L.P.	\$0	\$5,625,000	\$4,375,000	\$4,375,000	\$0	\$1,875,000	\$0	\$0	\$0	\$16,250,000
TOTAL COMMITMENTS	\$50,000,000	\$45,000,000	\$35,000,000	\$35,000,000	\$30,000,000*	\$15,000,000	\$5,000,000*	\$50,000,000	\$35,000,000*	\$300,000,000*

* Funding of Tranches 2C, 3B and 5 are subject to approval by Lender's investment committee in its sole discretion.

**CERTIFICATION OF PERIODIC REPORT
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Herriot Tabuteau, M.D., certify that:

1. I have reviewed this quarterly report on Form 10-Q of Axsome Therapeutics, 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 2, 2022

/s/ Herriot Tabuteau, M.D.

Herriot Tabuteau, M.D.

Chief Executive Officer

(Principal Executive Officer)

**CERTIFICATION OF PERIODIC REPORT
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Nick Pizzie, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Axsome Therapeutics, 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 2, 2022

/s/ Nick Pizzie

Nick Pizzie

Chief Financial Officer

(Principal Financial and Accounting Officer)

**STATEMENT OF PRINCIPAL EXECUTIVE OFFICER OF
AXSOME THERAPEUTICS, INC.
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 of Axsome Therapeutics, Inc. (the "Company") on Form 10-Q for the quarter ended March 31, 2022 as filed with the Securities and Exchange Commission (the "Report"), I, Herriot Tabuteau, M.D., Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. §1350, as adopted pursuant to §906 of the Sarbanes-Oxley Act of 2002, that, based on my knowledge:

- 1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and
- 2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: May 2, 2022

/s/ Herriot Tabuteau, M.D.

Herriot Tabuteau, M.D.
Chief Executive Officer
(Principal Executive Officer)

**STATEMENT OF PRINCIPAL FINANCIAL OFFICER OF
AXSOME THERAPEUTICS, INC.
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 of Axsome Therapeutics, Inc. (the "Company") on Form 10-Q for the quarter ended March 31, 2022 as filed with the Securities and Exchange Commission (the "Report"), I, Nick Pizzie, Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. §1350, as adopted pursuant to §906 of the Sarbanes-Oxley Act of 2002, that, based on my knowledge:

- 1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and
- 2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: May 2, 2022

/s/ Nick Pizzie

Nick Pizzie
Chief Financial Officer
(Principal Financial and Accounting Officer)
