UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

Form 10-Q

(Mark One)

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

For the quarterly period ended September 30, 2024

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: 001-36544

Sage Therapeutics, Inc.

(Exact name of registrant as specified in its Charter)

Delaware	**27-4486580**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**

55 Cambridge Parkway
Cambridge, Massachusetts 02142
(Address of principal executive office) (Zip Code)

Registrant's telephone number, including area code: (617) 299-8380

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	SAGE	The Nasdaq Global Market

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

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

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

Large accelerated filer	☒	Accelerated filer	☐
Non-accelerated filer	☐	Smaller reporting company	☐
Emerging Growth Company	☐		

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

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

As of October 22, 2024, there were 61,173,263 shares of the registrant's common stock, $0.0001 par value per share, outstanding.

Cautionary Note Regarding Forward-Looking Statements

This Quarterly Report on Form 10-Q, or Quarterly Report, contains forward-looking statements that involve risks and uncertainties. We make such forward-looking statements pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995 and other federal securities laws. All statements other than statements of historical facts contained in this Quarterly Report are forward-looking statements. In some cases, you can identify forward-looking statements by terminology such as "may", "will", "should", "expects", "intends", "plans", "anticipates", "believes", "estimates", "predicts", "potential", "continue" or the negative of these terms or other comparable terminology. These forward-looking statements include, but are not limited to, statements about:

- our expectations and goals for commercialization of ZURZUVAE® in the U.S. as a treatment for women with postpartum depression, or PPD, including our beliefs in the potential benefit and profile of ZURZUVAE for the treatment of women with PPD; our estimates as to the number of women with PPD and our belief in the market opportunity in this indication; the potential market for ZURZUVAE for the treatment of women with PPD; our market access, sales and marketing, customer support, and distribution strategies for ZURZUVAE and related expectations, goals, and assumptions; our market access goal of helping all women with PPD who are prescribed ZURZUVAE gain access to ZURZUVAE as quickly as possible with minimal restrictions; and the potential future results of our commercialization efforts in the U.S.;
- our expectations and estimates regarding: the level of expenses we may incur in connection with our activities, including as a result of our October 2024 reorganization; use of cash, cash runway and projected cash balance at any given time; timing of future cash needs; capital requirements; funding from potential revenue; anticipated funding from ongoing collaborations; sources of future financing; and our ability to obtain additional financing when needed to fund future operations;
- our plans for the development of our product candidates for the treatment of brain health diseases and disorders, and potentially for other indications, including our development plans for dalzanemdor; the potential for positive results from our ongoing Phase 2 placebo-controlled DIMENSION Study of dalzanemdor for the treatment of cognitive impairment associated with Huntington's disease, despite negative results from both the Phase 2 PRECEDENT Study evaluating dalzanemdor for the treatment of cognitive impairment associated with Parkinson's disease and the Phase 2 LIGHTWAVE Study evaluating dalzanemdor for the treatment of mild cognitive impairment and mild dementia due to Alzheimer's disease; the potential impact of our decision to adjust the primary endpoint in the ongoing DIMENSION Study, based on our review of data from the SURVEYOR Study and other relevant information; our plans to close the ongoing open label safety study of SAGE-324 in essential tremor, cease further clinical development of SAGE-324 for the treatment of essential tremor, and evaluate next steps for other potential indications, if any; our beliefs as to the potential profile and benefit of our product candidates; our plans with respect to other research and development activities; and expected timelines for our planned activities;
- our plans to discontinue commercial availability of ZULRESSO in the U.S. as of December 31, 2024;
- our ability, within the expected time frames, to initiate clinical trials and non-clinical studies of existing or future product candidates, including pivotal clinical trials, and to successfully enroll, complete and announce the results of ongoing or future clinical trials;
- our belief as to potential outcomes of our clinical development and commercialization activities;
- our plans and potential outcomes with respect to interactions with regulatory authorities;
- our plans for and the potential costs, benefits and outcomes of our existing collaborations with Biogen MA Inc., or BIMA, and Biogen International GmbH, or, together with BIMA, Biogen, and Shionogi & Co., Ltd., or Shionogi, and our plans for and potential outcomes of any additional business development efforts;
- our plans and expectations with respect to the potential development of any product or product candidate for markets outside the U.S.;

- our expectations with respect to the availability of supplies of ZURZUVAE and our product candidates, and the expected performance of our third-party manufacturers, including conformity with applicable regulatory requirements;
- our ability to obtain and maintain intellectual property protection for our proprietary assets and other forms of exclusivity relevant to our business;
- the estimated number of patients with diseases or disorders of interest to us and the potential size of the market for our products and product candidates in the indications we are pursuing or plan to study;
- the potential for our current products and current or future product candidates, if successfully developed and approved, for the indications and in the markets for which they are approved and our ability to serve those markets;
- the potential for success of competing products that are or become available for the treatment of PPD or any of the other indications that we are pursuing or may pursue in the future with our products and our product candidates;
- the impact of changes to the macroeconomic environment and geopolitical events on our activities, business and results of operations, and the potential success of our efforts to address or mitigate such impact; and
- other risks and uncertainties, including those listed under Part II, Item 1A, Risk Factors.

Any forward-looking statements in this Quarterly Report reflect our current views with respect to future events and with respect to our business and future financial performance, and involve known and unknown risks, uncertainties and other factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by these forward-looking statements. Factors that may cause actual results to differ materially from current expectations include, among other things, those described under Part II, Item 1A, Risk Factors and elsewhere in this Quarterly Report. Given these uncertainties, you should not place undue reliance on these forward-looking statements. Except as required by law, we assume no obligation to update or revise these forward-looking statements for any reason, even if new information becomes available in the future.

We may from time to time provide estimates, projections and other information concerning, among other things, our industry, the general business environment, and the markets for certain diseases, including estimates regarding the potential size of those markets and the estimated incidence and prevalence of certain medical conditions. Information that is based on estimates, forecasts, projections, market research or similar methodologies is inherently subject to uncertainties, and actual events, circumstances or numbers, including actual disease prevalence rates and market size, may differ materially from the information we provide in this Quarterly Report. Unless otherwise expressly stated, we obtained this industry and business information, market data, prevalence information and other data from reports, research surveys, studies and similar data prepared by market research firms and other third parties; industry, medical and general publications; government data; and similar sources, in some cases applying our own assumptions and analysis that may, in the future, prove not to have been accurate.

This Quarterly Report on Form 10-Q contains references to our trademarks and service marks and to those belonging to other entities. Solely for convenience, trademarks and trade names referred to in this Quarterly Report on Form 10-Q and the documents incorporated by reference herein may appear without the ® or ™ symbols, but such references are not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights or the rights of the applicable licensor to these trademarks and trade names. We do not intend our use or display of other companies' trade names, trademarks or service marks to imply a relationship with, or endorsement or sponsorship of us by, any other companies.

Summary of Risks Related to our Business

Our business, prospects, financial condition, and operating results are subject to numerous risks and uncertainties that you should be aware of before making an investment decision, as more fully described under Part II, Item 1A, Risk Factors and elsewhere in this Quarterly Report. These risks may include, but are not limited to, the following:

- Our future business prospects depend heavily on our ability, with our collaborator Biogen, to successfully commercialize ZURZUVAE for the treatment of women with PPD. We and Biogen may not be successful in our commercialization efforts for ZURZUVAE for the treatment of women with PPD. ZURZUVAE may not achieve and maintain broad market acceptance from healthcare professionals, patients or payors for the treatment of this disease. For example, healthcare professionals may decide not to use ZURZUVAE as a treatment option for their patients with PPD or to only prescribe ZURZUVAE for a subset of women with PPD in their practice who they consider to have particularly severe symptoms relative to other patients suffering from this disease. Women with PPD may decide that they do not want to be treated with ZURZUVAE, including out of concerns about its safety and tolerability profile or use while breastfeeding. Payors that currently have favorable coverage for ZURZUVAE in PPD may change their policies and may decide to limit reimbursement for ZURZUVAE, including by requiring women with PPD to try other treatments prior to ZURZUVAE, requiring a specific showing of symptom severity on measurement scales, requiring prior consultation with a psychiatrist or other specialist, or imposing other onerous prior authorization requirements, or may deny reimbursement for other reasons or in all cases. Also, even if a healthcare professional writes a prescription for ZURZUVAE, it may not result in product being shipped to a patient and a patient taking ZURZUVAE. The healthcare professional or the patient may, for example, not take the steps necessary to obtain reimbursement or to have the prescription filled at the specialty pharmacy or may find the process too slow or complicated. We may also encounter other limitations or issues related to the commercialization of ZURZUVAE, including as a result of its price or competition in the market. As a result, we may not generate revenues at the levels or on the timing we expect. The number of women with PPD, the unmet need for additional treatment options, and the potential market for ZURZUVAE in this indication may be significantly smaller than we expect. Any setback or delay in our ability to market ZURZUVAE for the treatment of women with PPD may have a material adverse effect on our business and prospects.
- Our future business prospects also depend heavily on our ability to successfully develop and gain regulatory approval of our product candidates. We cannot be certain that the results of our development programs will be positive or sufficient to file for regulatory approval. We cannot be certain that we will meet our timelines, including with respect to trial completion, data readouts, and initiation of future clinical trials. Decisions or actions of the FDA or other regulatory authorities may adversely affect our plans, progress or results at any stage of development. We cannot be certain that we or our collaborators will be able to successfully file or obtain regulatory approval for, or successfully commercialize, if approved, any of our product candidates on the timelines we expect or at all. Any setback or delay in obtaining regulatory approval for any of our product candidates or in our ability to commence marketing of our products, if approved, may have a material adverse effect on our business and prospects.
- If the affected populations for indications our products and product candidates are targeting, including the addressable markets within such populations, or the number of patients within such markets who are actually treated with our products, are smaller than we anticipate, or our other assumptions with respect to the potential markets for our products and product candidates are incorrect, our ability to achieve profits from the commercialization of such products, if approved, at the levels or on the timing we expect could be materially adversely impacted.
- We may not achieve positive results in the ongoing or planned clinical trials and non-clinical studies of our product candidates. Positive results from earlier non-clinical studies and clinical trials of our product candidates are not necessarily predictive of the results of later non-clinical studies and clinical trials of our product candidates in the same indications or other indications. The results of non-clinical studies or clinical trials of our product candidates at any stage may not support further development or may not be sufficient to file for and obtain regulatory approval.

- If serious adverse events or other undesirable side effects are identified during the use of any of our marketed products or product candidates, such events may adversely affect market acceptance or result in other significant negative consequences for an approved product; delay or prevent further development or regulatory approval with respect to product candidates; or cause regulatory authorities to require labeling statements, such as boxed warnings, or a Risk Evaluation and Mitigation Strategy, on approved products.
- We may not generate revenues from our existing products, or any of our product candidates if successfully developed, at the levels we expect. We may not achieve events tied to cash milestone payments or other payments from our collaboration partners on the timelines we expect or at all. Our expenses may also be higher than we expect, including as a result of unexpected events or changes in plans. Also, we may not achieve anticipated cost savings from our October 2024 reorganization at the levels we expect. As a result, our expectations as to our cash runway and the sufficiency of cash to fund our future operations may prove to be incorrect. We will need to raise additional funding, which may not be available on acceptable terms, or at all.
- Any impairment of the ability of our third-party suppliers to supply product or to meet applicable regulatory standards may significantly negatively impact our ability to achieve our goals and plans and to meet the expectations for our business.
- Competing therapies may exist or could be approved that adversely affect the amount of revenue we are able to generate from the sale of ZURZUVAE or any of our other current or future product candidates, if successfully developed and approved.
- Our existing collaborations with Biogen and Shionogi, and any future collaborations, may not lead to the successful development or regulatory approval of product candidates or commercialization of products in the territories covered by the applicable collaboration. Our collaborators may have competing priorities, conflicting incentives, or different views than us on key decisions, that may hamper or delay our development and commercialization efforts or increase our costs. Our business may be adversely affected and we may be subject to delays, disputes, or litigation if we disagree significantly with any of our collaborators, or any of our collaborators fails to perform its obligations or terminates our collaboration.
- If we are unable to adequately protect our proprietary technology or obtain and maintain issued patents sufficient to protect our products or product candidates, others could compete against us more directly, which would have a material adverse impact on our business, results of operations, financial condition and prospects.
- If we were to lose our rights to certain licensed intellectual property, or if we are not able to obtain licenses to intellectual property we may determine we need in the future, we may not be able to continue developing or commercializing certain of our products or product candidates, if approved.
- Existing or future laws, regulations, executive orders or policies aimed at reducing healthcare costs may have a material adverse effect on our business or results of operations. For example, the Inflation Reduction Act of 2022 and other existing, pending or future federal and state reforms aimed at reducing healthcare costs, including pricing and reimbursement of pharmaceutical products, may in the future result in reduced reimbursement and access for our products or cause us to curtail certain development plans due to concerns about commercial viability, any of which could adversely affect our ability to generate revenue and negatively impact our business, results of operations and financial condition.
- We are subject to healthcare laws and regulations, which could expose us to the risk of criminal sanctions, civil penalties, contractual damages, reputational harm and diminished profits and future earnings if we or our employees are alleged or determined not to have complied with such laws and regulations.
- Our stock price may fluctuate in response to a number of factors.

Sage Therapeutics, Inc.

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PART I — FINANCIAL INFORMATION

Item 1. Financial Statements

Sage Therapeutics, Inc. and Subsidiaries
Condensed Consolidated Balance Sheets
(in thousands, except share and per share data)
(Unaudited)

	September 30, 2024	December 31, 2023
Assets		
Current assets:		
Cash and cash equivalents	$ 99,627	$ 70,992
Marketable securities	469,527	682,192
Prepaid expenses and other current assets	19,630	31,825
Collaboration receivable - related party	14,871	83,009
Restricted cash	1,332	1,332
Total current assets	604,987	869,350
Property and equipment, net	1,019	1,921
Right-of-use operating asset	11,251	4,458
Other long-term assets	5,175	6,548
Total assets	$ 622,432	$ 882,277
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	$ 7,126	$ 10,318
Accrued expenses	53,197	67,264
Operating lease liability, current portion	83	5,165
Total current liabilities	60,406	82,747
Operating lease liability, net of current portion	10,191	—
Total liabilities	70,597	82,747
Commitments and contingencies (Note 6)		
Stockholders' equity:		
Preferred stock, $0.0001 par value per share; 5,000,000 shares authorized at September 30, 2024 and December 31, 2023; no shares issued or outstanding at September 30, 2024 and December 31, 2023	—	—
Common stock, $0.0001 par value per share; 120,000,000 shares authorized at September 30, 2024 and December 31, 2023; 61,176,296 and 60,046,676 shares issued at September 30, 2024 and December 31, 2023; 61,173,263 and 60,043,643 shares outstanding at September 30, 2024 and December 31, 2023	6	6
Treasury stock, at cost, 3,033 shares at September 30, 2024 and December 31, 2023	(400)	(400)
Additional paid-in capital	3,425,875	3,370,397
Accumulated deficit	(2,874,547)	(2,569,659)
Accumulated other comprehensive gain (loss)	901	(814)
Total stockholders' equity	551,835	799,530
Total liabilities and stockholders' equity	$ 622,432	$ 882,277

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

Sage Therapeutics, Inc. and Subsidiaries
Condensed Consolidated Statements of Operations and Comprehensive Loss
(in thousands, except share and per share data)
(Unaudited)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2024	2023	2024	2023
Product revenue, net	$ 843	$ 2,716	$ 3,132	$ 8,469
Collaboration revenue - related party	11,028	—	24,661	—
Other collaboration revenue	—	—	634	14
Total revenues	11,871	2,716	28,427	8,483
Operating costs and expenses:				
Cost of revenues	5,278	905	7,955	1,339
Research and development	54,576	101,919	188,873	291,905
Selling, general and administrative	53,219	78,142	161,775	219,415
Restructuring	—	33,599	—	33,599
Total operating costs and expenses	113,073	214,565	358,603	546,258
Loss from operations	(101,202)	(211,849)	(330,176)	(537,775)
Interest income, net	7,642	10,274	25,277	29,276
Other income (expense), net	9	(55)	11	(284)
Net loss	$ (93,551)	$ (201,630)	$ (304,888)	$ (508,783)
Net loss per share—basic and diluted	$ (1.53)	$ (3.37)	$ (5.03)	$ (8.51)
Weighted average number of common shares outstanding—basic and diluted	61,116,524	59,912,378	60,598,909	59,786,254
Comprehensive loss:				
Net loss	$ (93,551)	$ (201,630)	$ (304,888)	$ (508,783)
Other comprehensive items:				
Unrealized gain on marketable securities	1,592	1,909	1,715	6,471
Total comprehensive loss	$ (91,959)	$ (199,721)	$ (303,173)	$ (502,312)

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

Sage Therapeutics, Inc. and Subsidiaries
Condensed Consolidated Statements of Cash Flows
(in thousands)
(Unaudited)

	Nine Months Ended September 30,	
	2024	2023
Cash flows from operating activities		
Net loss	$ (304,888)	$ (508,783)
Adjustments to reconcile net loss to net cash used in operating activities:		
Stock-based compensation expense	45,072	60,422
Premium on marketable securities	(186)	(71)
Amortization of discount on marketable securities	(5,538)	(12,521)
Depreciation expense	902	984
Changes in operating assets and liabilities:		
Prepaid expenses and other current assets	12,195	16,121
Collaboration receivable - related party	68,138	(8,853)
Other long-term assets	2,873	(1,823)
Right-of-use operating asset	4,679	4,506
Operating lease liabilities, current	(5,082)	(676)
Operating lease liabilities, non-current	149	(4,491)
Accounts payable	(3,192)	(7,677)
Accrued expenses and other liabilities	(15,756)	41,796
Net cash used in operating activities	(200,634)	(421,066)
Cash flows from investing activities		
Proceeds from sales and maturities of marketable securities	582,357	861,231
Purchases of marketable securities	(362,253)	(459,714)
Purchases of property and equipment	—	(665)
Net cash provided by investing activities	220,104	400,852
Cash flows from financing activities		
Proceeds from stock option exercises and employee stock purchase plan issuances	3,020	6,930
Payments of offering costs	(117)	—
Proceeds from public offerings of common stock, net of commissions and underwriting discounts	8,164	—
Payment of employee tax obligations related to vesting of restricted stock units	(402)	(641)
Net cash provided by financing activities	10,665	6,289
Net increase (decrease) in cash, cash equivalents and restricted cash	30,135	(13,925)
Cash, cash equivalents and restricted cash at beginning of period	72,324	163,969
Cash, cash equivalents and restricted cash at end of period	$ 102,459	$ 150,044
Supplemental disclosure of non-cash operating activities		
Right-of-use assets obtained in exchange for new operating lease liabilities	11,472	—

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

Sage Therapeutics, Inc. and Subsidiaries
Condensed Consolidated Statements of Changes in Stockholders' Equity
(in thousands, except share data)
(Unaudited)

	Common Stock		Treasury Stock		Additional Paid-in	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount	Shares	Amount	Capital			
Balances at December 31, 2022	59,509,125	$ 6	3,033	$ (400)	$ 3,291,369	$ (10,206)	$ (2,028,170)	$ 1,252,599
Issuance of common stock from exercises of stock options	52,058	—	—	—	438	—	—	438
Issuance of common stock under the employee stock purchase plan	76,105	—	—	—	2,863	—	—	2,863
Stock-based compensation expense	—	—	—	—	19,568	—	—	19,568
Change in unrealized loss on available-for-sale securities	—	—	—	—	—	5,118	—	5,118
Vesting of restricted stock units, net of employee tax obligations	124,713	—	—	—	(629)	—	—	(629)
Net loss	—	—	—	—	—	—	(146,828)	(146,828)
Balances at March 31, 2023	59,762,001	6	3,033	(400)	3,313,609	(5,088)	(2,174,998)	1,133,129
Issuance of common stock from exercises of stock options	20,032	—	—	—	855	—	—	855
Stock-based compensation expense	—	—	—	—	11,281	—	—	11,281
Change in unrealized loss on available-for-sale securities	—	—	—	—	—	(556)	—	(556)
Vesting of restricted stock units, net of employee tax obligations	13,972	—	—	—	(8)	—	—	(8)
Net loss	—	—	—	—	—	—	(160,325)	(160,325)
Balances at June 30, 2023	59,796,005	$ 6	3,033	$ (400)	$ 3,325,737	$ (5,644)	$ (2,335,323)	$ 984,376
Issuance of common stock under the employee stock purchase plan	87,938	—	—	—	3,656	—	—	3,656
Stock-based compensation expense	—	—	—	—	28,352	—	—	28,352
Change in unrealized loss on available-for-sale securities	—	—	—	—	—	1,909	—	1,909
Vesting of restricted stock units, net of employee tax obligations	83,573	—	—	—	(4)	—	—	(4)
Net loss	—	—	—	—	—	—	(201,630)	(201,630)
Balances at September 30, 2023	59,967,516	$ 6	3,033	$ (400)	$ 3,357,741	$ (3,735)	$ (2,536,953)	$ 816,659

Sage Therapeutics, Inc. and Subsidiaries
Condensed Consolidated Statements of Changes in Stockholders' Equity (continued)
(in thousands, except share data)
(Unaudited)

	Common Stock		Treasury Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount	Shares	Amount				
Balances at December 31, 2023	60,043,643	$ 6	3,033	$ (400)	$ 3,370,397	$ (814)	$ (2,569,659)	$ 799,530
Issuance of common stock from exercises of stock options	7,142	—	—	—	52	—	—	52
Issuance of common stock under the employee stock purchase plan	61,402	—	—	—	1,507	—	—	1,507
Stock-based compensation expense	—	—	—	—	13,170	—	—	13,170
Change in unrealized loss on available-for-sale securities	—	—	—	—	—	27	—	27
Vesting of restricted stock units, net of employee tax obligations	69,844	—	—	—	(2)	—	—	(2)
Net loss	—	—	—	—	—	—	(108,483)	(108,483)
Balances at March 31, 2024	60,182,031	6	3,033	(400)	3,385,124	(787)	(2,678,142)	705,801
Issuance of common stock from exercises of stock options	2,920	—	—	—	26	—	—	26
Stock-based compensation expense	—	—	—	—	16,947	—	—	16,947
Issuance of common stock upon public offering, net of issuance costs	700,000	—			8,047	—	—	8,047
Change in unrealized loss on available-for-sale securities	—	—	—	—	—	96	—	96
Vesting of restricted stock units, net of employee tax obligations	9,983	—	—	—	(1)	—	—	(1)
Net loss	—	—	—	—	—	—	(102,854)	(102,854)
Balances at June 30, 2024	60,894,934	$ 6	3,033	$ (400)	$ 3,410,143	$ (691)	$ (2,780,996)	$ 628,062
Issuance of common stock under the employee stock purchase plan	155,484	—	—	—	2,182	—	—	2,182
Stock-based compensation expense	—	—	—	—	13,949	—	—	13,949
Change in unrealized gain on available-for-sale securities	—	—	—	—	—	1,592	—	1,592
Vesting of restricted stock units, net of employee tax obligations	122,845	—	—	—	(399)	—	—	(399)
Net loss	—	—	—	—	—	—	(93,551)	(93,551)
Balances at September 30, 2024	61,173,263	$ 6	3,033	$ (400)	$ 3,425,875	$ 901	$ (2,874,547)	$ 551,835

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

1. Nature of the Business

Sage Therapeutics, Inc. ("Sage" or the "Company") is a biopharmaceutical company with a mission to pioneer solutions to deliver life-changing brain health medicines, so every person can thrive.

The Company's product ZURZUVAE® (zuranolone) was approved by the U.S. Food and Drug Administration (the "FDA") on August 4, 2023 for the treatment of postpartum depression ("PPD") in adults. ZURZUVAE is a neuroactive steroid that is a positive allosteric modulator of $GABA_A$ receptors, targeting both synaptic and extrasynaptic $GABA_A$ receptors, and is the first oral, once-daily, 14-day treatment specifically indicated for adults with PPD. ZURZUVAE became commercially available for women with PPD in December 2023.

Additionally, on August 4, 2023, the FDA issued a complete response letter ("CRL") related to the Company's new drug application ("NDA") for zuranolone for the treatment of major depressive disorder ("MDD"). The CRL stated that the NDA did not provide substantial evidence of effectiveness to support the approval of zuranolone for the treatment of MDD and that one or more additional clinical trials would be needed. The Company and Biogen MA Inc. ("BIMA") and Biogen International GmbH (collectively with BIMA, "Biogen") have agreed not to pursue further development of zuranolone for the treatment of MDD in the U.S. The Company and Biogen plan to continue to collaborate on the commercialization of ZURZUVAE in PPD.

The Company's product ZULRESSO® (brexanolone) CIV injection is currently approved in the U.S. for the treatment of PPD in individuals 15 years old and older and was launched commercially in the U.S. in June 2019. ZULRESSO may only be administered in qualified, medically-supervised healthcare settings. Brexanolone is chemically identical to allopregnanolone, a naturally occurring neuroactive steroid that, like zuranolone, acts as a positive allosteric modulator of $GABA_A$ receptors.

The Company plans to discontinue commercial availability of ZULRESSO in the U.S. as of December 31, 2024. The Company plans to support scheduled ZULRESSO infusions until the end of 2024. As a result of the decision to discontinue ZULRESSO commercial availability, during the three months ended September 30, 2024, the Company incurred $3.6 million of incremental cost related to impairment of intangible assets and excess inventory write-off.

The Company has a portfolio of product candidates with a current focus on modulating two critical central nervous system ("CNS") receptor systems, GABA and NMDA. The GABA receptor family, which is recognized as the major inhibitory neurotransmitter in the CNS, mediates downstream neurologic and bodily function via activation of $GABA_A$ receptors. The NMDA-type receptors of the glutamate receptor system are a major excitatory receptor system in the CNS. Dysfunction in these systems is implicated in a broad range of CNS disorders. The Company is targeting diseases and disorders of the brain across its pipeline.

In October 2024, the Company committed to a plan to reorganize its business operations, including a reduction of the Company's workforce by approximately 33%. See Note 12, *Subsequent Event*, for further details.

The Company was incorporated under the laws of the State of Delaware on April 16, 2010, and commenced operations on January 19, 2011 as Sterogen Biopharma, Inc. On September 13, 2011, the Company changed its name to Sage Therapeutics, Inc.

Risks and Uncertainties

The Company is subject to risks and uncertainties common to companies in the biopharmaceutical industry, including, but not limited to, the risks associated with developing product candidates at each stage of non-clinical

and clinical development; the challenges associated with gaining regulatory approval of such product candidates; the risks associated with the marketing and sale of pharmaceutical products; the potential for development by third parties of new technological innovations that may compete with the Company's products and product candidates; the dependence on key personnel; the challenges of protecting proprietary technology; the need to comply with government regulations; the high costs of drug development; the uncertainty of being able to secure additional capital when needed to fund operations; and the direct or indirect impacts of the macroeconomic environment and geopolitical events on its development activities, operations and financial condition.

The product candidates developed by the Company require approvals from the FDA or foreign regulatory authorities prior to commercial sales. There can be no assurance that the current and future product candidates of the Company will receive, or that ZURZUVAE will maintain, the necessary approvals. If the Company fails to successfully complete clinical development and generate results sufficient to file for regulatory approval or is denied approval or approval is delayed for any of its product candidates, such occurrences may have a material adverse impact on the Company's business and its financial condition.

The Company is also subject to additional risks and uncertainties arising from changes to the macroeconomic environment and geopolitical events. U.S. and global financial markets have experienced volatility and disruption due to macroeconomic and geopolitical events such as rising inflation, the risk of a recession and ongoing conflicts in other countries. In addition, if equity and credit markets deteriorate, it may make any future debt or equity financing more difficult to obtain on favorable terms, and potentially more dilutive to its existing stockholders. The Company cannot predict at this time to what extent it and its collaborators, employees, suppliers, contract manufacturers and/or vendors could potentially be negatively impacted by these events.

Going Concern

Under Accounting Standards Update ("ASU") No. 2014-15, *Presentation of Financial Statements—Going Concern* (Subtopic 205-40), the Company has the responsibility to evaluate whether conditions and/or events raise substantial doubt about its ability to meet its future financial obligations as they become due within one year after the date that the financial statements are issued. The Company has incurred losses and negative cash flows from operations in each year since its inception, except for net income of $606.1 million for the year ended December 31, 2020, reflecting revenue recognized under a collaboration and license agreement with Biogen (the "Biogen Collaboration Agreement"). As of September 30, 2024, the Company had an accumulated deficit of $2.9 billion. Until such time, if ever, as the Company can generate substantial product revenue and/or collaboration revenue and achieve sustained profitability, the Company expects to finance its cash needs through a combination of equity offerings, debt financings, collaborations, strategic alliances, licensing arrangements and other sources of funding. If the Company is unable to raise additional funds through equity or debt financings or other sources of funding when needed, the Company may be required to delay, limit, reduce or terminate product development or future commercialization efforts or grant rights to develop and market products or product candidates that the Company would otherwise prefer to develop and market itself.

The Company expects that, based on its current operating plans, the Company's existing cash, cash equivalents and marketable securities will be sufficient to fund its currently planned operations for at least the next 12 months from the filing date of these unaudited interim condensed consolidated financial statements ("condensed consolidated financial statements"). The Company anticipates it will require additional financing to fund its future operations. Even if the Company believes it has sufficient funds for its current or future operating plans, the Company may seek to raise additional capital if market conditions are favorable or in light of other strategic considerations.

2. Summary of Significant Accounting Policies

The following is a summary of significant accounting policies followed in the preparation of these condensed consolidated financial statements.

Basis of Presentation

The condensed consolidated financial statements of the Company included herein have been prepared pursuant to the rules and regulations of the Securities and Exchange Commission (the "SEC"). Certain information and footnote disclosures normally included in financial statements prepared in accordance with accounting principles generally accepted in the United States of America ("GAAP") have been condensed or omitted from this report, as is permitted by such rules and regulations. Accordingly, these condensed consolidated financial statements should be read in conjunction with the audited consolidated financial statements as of and for the year ended December 31, 2023, included in the Company's Annual Report on Form 10-K for the year ended December 31, 2023.

The condensed consolidated financial statements have been prepared on the same basis as the audited consolidated financial statements. In the opinion of the Company's management, the accompanying condensed consolidated financial statements contain all adjustments, consisting of only normal recurring adjustments, necessary for a fair statement of its financial position as of September 30, 2024, its results of operations and comprehensive loss for the three and nine months ended September 30, 2024 and 2023, its cash flows for the nine months ended September 30, 2024 and 2023, and its statements of changes in stockholders' equity for the three and nine months ended September 30, 2024 and 2023. The consolidated balance sheet at December 31, 2023 was derived from audited financial statements, but does not include all disclosures required by GAAP. The results for the three and nine months ended September 30, 2024 are not necessarily indicative of the results for the year ending December 31, 2024, or for any future period.

Principles of Consolidation

The condensed consolidated financial statements include the accounts of the Company and its wholly-owned subsidiaries as disclosed in Note 2, *Summary of Significant Accounting Policies*, within the "Notes to Consolidated Financial Statements" accompanying its Annual Report on Form 10-K for the year ended December 31, 2023. Intercompany accounts and transactions have been eliminated.

Use of Estimates

The preparation of condensed consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the condensed consolidated financial statements and the reported amounts of revenues and expenses during the reporting period.

Research and Development Costs and Accruals

Research and development expenses are comprised of costs incurred in performing research and development activities, including salaries and benefits, overhead costs, depreciation, contract services and other related costs. Research and development costs are expensed to operations as the related obligation is incurred.

The Company has entered into various research and development contracts with research institutions and other companies both inside and outside of the U.S. These agreements are generally cancelable, and related costs are recorded as research and development expenses as incurred. The Company records accruals for estimated ongoing research and development costs. When billing terms under these contracts do not coincide with the timing of when the work is performed, the Company is required to make estimates of outstanding obligations to those third parties as of the end of the reporting period. Any accrual estimates are based on a number of factors, including the Company's knowledge of the progress towards completion of the research and development activities, invoicing to date under the contracts, communication from the research institution or other companies of any actual costs incurred during the period that have not yet been invoiced, and the costs included in the contracts. Significant judgments and estimates are made in determining the accrued balances at the end of any reporting period. Actual results could differ from the estimates made by the Company. The historical accrual estimates made by the Company have not been materially different from the actual costs.

Revenue Recognition

Under Accounting Standards Codification ("ASC") Topic 606, *Revenue from Contracts with Customers* ("Topic 606"), an entity recognizes revenue when or as performance obligations are satisfied by transferring control of promised goods or services to a customer, in an amount that reflects the consideration that the entity expects to receive in exchange for those goods or services. To determine revenue recognition for arrangements that an entity determines are within the scope of Topic 606, the entity performs the following five steps: (i) identify the contract(s) with a customer; (ii) identify the performance obligations in the contract; (iii) determine the transaction price, including variable consideration, if any; (iv) allocate the transaction price to the performance obligations in the contract; and (v) recognize revenue when (or as) the entity satisfies a performance obligation. Arrangements that include rights to additional goods or services that are exercisable at a customer's discretion are generally considered options. The Company assesses if these options provide a material right to the customer and if so, they are considered performance obligations. The exercise of a material right may be accounted for as a contract modification or as a continuation of the contract for accounting purposes.

Topic 606 applies to all contracts with customers, except for contracts that are within the scope of other standards, such as collaboration arrangements.

For contracts determined to be within the scope of Topic 606, the Company assesses whether the goods or services promised within each contract are distinct to identify those that are performance obligations. This assessment involves subjective determinations and requires management to make judgments about the individual promised goods or services and whether such are separable from the other aspects of the contractual relationship. Promised goods and services are considered distinct provided that: (i) the customer can benefit from the good or service either on its own or together with other resources that are readily available to the customer and (ii) the entity's promise to transfer the good or service to the customer is separately identifiable from other promises in the contract.

The Company allocates the transaction price (the amount of consideration it expects to be entitled to from a customer in exchange for the promised goods or services) to each performance obligation and recognizes the associated revenue when (or as) each performance obligation is satisfied. The Company's estimate of the transaction price for each contract includes all variable consideration to which the Company expects to be entitled.

Product Revenue, Net

The Company generates product revenue from the sale of ZULRESSO to a limited number of specialty distributors and specialty pharmacy providers in the U.S. The Company recognizes product revenue, net of variable consideration related to certain allowances and accruals that are determined using the expected value method, in its condensed consolidated financial statements at the point in time when control transfers to the customer, which is typically when the product has been delivered to the customer's location. The amount included in the transaction price is constrained to the amount for which it is probable that a significant reversal of cumulative revenue recognized will not occur. The Company's only performance obligation identified for ZULRESSO is to deliver the product to the location specified by the customer's order. The Company plans to discontinue commercial availability of ZULRESSO in the U.S. as of December 31, 2024.

The Company records shipping and handling costs associated with delivery of product to its customers within selling, general and administrative expenses on its condensed consolidated statements of operations and comprehensive loss. The Company expenses incremental costs of obtaining a contract as incurred if the expected amortization period of the asset would be less than one year. If the Company were to incur incremental costs with an amortization period greater than a year, such costs would be capitalized as contract assets, as they are expected to be recovered, and would be expensed by amortizing on a systematic basis that is consistent with the transfer to the customer of the goods or services to which the asset relates. The Company did not have any contract assets (unbilled receivables) at September 30, 2024, as customer invoicing generally occurs before or at the time of revenue recognition. The Company did not have any contract liabilities at September 30, 2024, as the Company did not receive any payments in advance of satisfying its performance obligations to its customers. Amounts billed or invoiced that are considered trade accounts receivable are included in prepaid expenses and other current assets on the condensed consolidated balance sheets.

As of September 30, 2024 and December 31, 2023, the Company had not provided any allowance for bad debts against the trade accounts receivable, and the amount of trade accounts receivable was not significant.

The Company records reserves, based on contractual terms, for the following components of variable consideration related to ZULRESSO sold by the Company during the reporting period, as well as its estimate of product that remains in the distribution channel inventory of its customers at the end of the reporting period. On a quarterly basis, the Company updates its estimates, if necessary, and records any material adjustments in the period they are identified.

Chargebacks: The Company estimates chargebacks from its customers who directly purchase the product from the Company for discounts resulting from contractual commitments to sell products to eligible healthcare settings at prices lower than the list prices charged to its customers. Customers charge the Company for the difference between what they pay to the Company for the product and the selling price to the eligible healthcare settings. Reserves for chargebacks consist of credits that the Company expects to issue for units that remain in the distribution channel inventories at the end of each reporting period that the Company expects will be sold to eligible healthcare settings, and chargebacks that customers have claimed, but for which the Company has not yet issued a credit.

Government Rebates: The Company is subject to discount obligations under government programs, including Medicaid. The Company records reserves for rebates in the same period the related product revenue is recognized, resulting in a reduction of ZULRESSO product revenue and a current liability that is included in accrued expenses on its condensed consolidated balance sheets. The Company's liability for these rebates consists of invoices received for claims from prior quarters that have not been paid or for which an invoice has not yet been received, estimates of claims for the current quarter, and estimates of future claims that will be made for product that has been recognized as revenue, but which remains in the distribution channel at the end of each reporting period.

Trade Discounts and Allowances: The Company generally provides customary invoice discounts on ZULRESSO sales to its customers for prompt payment and the Company pays fees for sales order management, data, and distribution services. The Company estimates its customers will earn these discounts and fees and deducts these discounts and fees in full from gross ZULRESSO revenue and accounts receivable at the time the Company recognizes the related revenue.

Financial Assistance: The Company provides voluntary financial assistance programs for ZULRESSO to patients with commercial insurance that have coverage and reside in states that allow financial assistance. The Company estimates the financial assistance amounts for ZULRESSO and records any such amounts within accrued expenses on its condensed consolidated balance sheets. The calculation of the accrual for financial assistance is based on an estimate of claims and the cost per claim that the Company expects to receive using demographics for patients who have registered and been approved for assistance. Any adjustments are recorded in the same period the related revenue is recognized, resulting in a reduction of product revenue and the establishment of a current liability, which is included as a component of accrued expenses on the condensed consolidated balance sheets.

Product Returns: Consistent with industry practice, the Company offers product return rights with respect to ZULRESSO to customers for damaged, defective or expiring product, provided it is within a specified period around the product expiration date as set forth in the Company's return goods policy. The Company estimates the amount of its product sales that may be returned by its customers and records this estimate as a reduction of revenue in the period the related product revenue is recognized, as well as a reserve within accrued expenses on the condensed consolidated balance sheets. Product returns have not been significant to date and are not expected to be significant in the future.

License, Milestone, and Collaboration Revenue

In assessing whether a promised good or service is distinct in the evaluation of a collaboration or license arrangement subject to Topic 606, the Company considers factors such as the research, manufacturing and commercialization capabilities of the collaboration partner and the availability of the associated expertise in the general marketplace. The Company also considers the intended benefit of the contract in assessing whether a promised good or service is separately identifiable from other promises in the contract. If a promised good or service is not distinct, the Company is required to combine that good or service with other promised goods or services until it identifies a bundle of goods or services that is distinct.

The transaction price is then determined and allocated to the identified performance obligations in proportion to their standalone selling prices ("SSP") on a relative SSP basis. SSP is determined at contract inception and is not updated to reflect changes between contract inception and when the performance obligations are satisfied. Determining the SSP for performance obligations requires significant judgment. In developing the SSP for a performance obligation, the Company considers applicable market conditions and relevant entity-specific factors, including factors that were contemplated in negotiating the agreement with the customer and estimated costs. In certain circumstances, the Company may apply the residual method to determine the SSP of a good or service if the SSP is considered highly variable or uncertain. The Company validates the SSP for performance obligations by evaluating whether changes in the key assumptions used to determine the SSP will have a significant effect on the allocation of arrangement consideration between multiple performance obligations.

If the consideration promised in a contract includes a variable amount, the Company estimates the amount of consideration to which it will be entitled in exchange for transferring the promised goods or services to a customer. The Company determines the amount of variable consideration by using the expected value method or the most likely amount method. The Company includes the unconstrained amount of estimated variable consideration in the transaction price. The amount included in the transaction price is constrained to the amount for which it is probable that a significant reversal of cumulative revenue recognized will not occur. At the end of each subsequent reporting period, the Company re-evaluates the estimated variable consideration included in the transaction price and any related constraint, and if necessary, adjusts its estimate of the overall transaction price. Any such adjustments are recorded on a cumulative catch-up basis in the period of adjustment.

If an arrangement includes development and regulatory milestone payments, the Company evaluates whether the milestones are considered probable of being reached and estimates the amount to be included in the transaction price using the most likely amount method. If it is probable that a significant revenue reversal would not occur, the associated milestone value is included in the transaction price. Milestone payments that are not within the Company's control or the licensee's control, such as regulatory approvals, are generally not considered probable of being achieved until those approvals are received.

In determining the transaction price, the Company adjusts consideration for the effects of the time value of money if the timing of payments provides the Company with a significant benefit of financing. The Company does not assess whether a contract has a significant financing component if the expectation at contract inception is such that the period between payment by the licensees and the transfer of the promised goods or services to the licensees will be one year or less. The Company assessed its arrangements with Shionogi & Co., Ltd. ("Shionogi") and Biogen and concluded that a significant financing component does not exist for either arrangement. For arrangements with licenses of intellectual property that include sales-based royalties or milestone payments based on the level of sales, and the license is deemed to be the predominant item to which the royalties or milestone payments relate, the Company recognizes royalty revenue and sales-based milestones at the later of (i) when the related sales occur, or (ii) when the performance obligation to which the royalty or milestone payment has been allocated has been satisfied.

The Company then recognizes as revenue the amount of the transaction price that is allocated to the respective performance obligation when (or as) each performance obligation is satisfied at a point in time or over time, and if over time this is based on the use of an output or input method. Revenue from the Company's collaboration agreement with Shionogi has come from initial, upfront consideration upon execution of the agreement and for the supply of drug product for Shionogi's clinical trials. Revenue from the Company's collaboration agreement with Biogen has come from initial, upfront consideration related to the execution of the Biogen Collaboration Agreement, milestone payments and the Company's share of ZURZUVAE revenues under the elements of the arrangement accounted for under ASC Topic 808 *Collaborative Arrangements* ("Topic 808"). For additional information, see the Collaborative Arrangements section below and refer to Note 7, *Collaboration Agreements*.

Collaborative Arrangements

The Company analyzes its collaboration arrangements to assess whether such arrangements involve joint operating activities performed by parties that are both active participants in the activities and exposed to significant risks and rewards dependent on the commercial success of such activities and therefore within the scope of Topic 808. This assessment is performed throughout the life of the arrangement based on changes in the responsibilities of all parties in the arrangement. For collaboration arrangements within the scope of Topic 808 that contain multiple elements, the Company first determines which elements of the collaboration are deemed to be within the scope of Topic 808 and which elements of the collaboration are more reflective of a vendor-customer relationship and therefore within the scope of Topic 606. For elements of collaboration arrangements that are accounted for pursuant to Topic 808, an appropriate recognition method is determined and applied consistently, either by analogy to authoritative accounting literature or by applying a reasonable and rational policy election. For those elements of the arrangement that are accounted for pursuant to Topic 606, the Company applies the five-step model described above and presents the arrangement as license and milestone revenue or other collaboration revenue in the condensed consolidated statements of operations and comprehensive loss.

For collaboration arrangements that are within the scope of Topic 808, the Company evaluates the income statement classification for presentation of amounts due from or owed to other participants associated with multiple activities in a collaboration arrangement based on the nature of each separate activity. Payments or reimbursements that are the result of a collaborative relationship instead of a vendor-customer relationship are recorded as an increase to collaboration revenue, an increase to or reduction of cost of revenues, research and development expense, or selling, general and administrative expense, depending on the nature of the activity. For additional information relating to the accounting for the co-commercialization of ZURZUVAE in the U.S. with Biogen under Topic 808, refer to Note 7, *Collaboration Agreements*.

Fair Value Measurements

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Financial assets and liabilities carried at fair value are classified and disclosed in one of the following three categories:

Level 1 — Quoted market prices in active markets for identical assets or liabilities.

Level 2 — Observable inputs other than Level 1 prices, such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

Level 3 — Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

The Company's cash equivalents and marketable securities at September 30, 2024 and December 31, 2023 were carried at fair value, determined according to the fair value hierarchy; see Note 3, *Fair Value Measurements*.

The carrying amounts reflected in the condensed consolidated balance sheets for the collaboration receivable – related party, accounts payable and accrued expenses approximate their fair values due to their short-term maturities at September 30, 2024 and December 31, 2023, respectively.

Recently Issued Accounting Pronouncements

In November 2023, the Financial Accounting Standards Board ("FASB") issued ASU 2023-07, *Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures* ("ASU 2023-07"). ASU 2023-07 requires disclosure of incremental segment information on an annual and interim basis. The amendments also require companies with a single reportable segment to provide all disclosures required by this amendment and all existing segment disclosures in ASC 280, Segment Reporting. The amendments are effective for fiscal years beginning after December 15, 2023, and interim periods beginning after December 15, 2024. The Company does not expect ASU 2023-07 to have a material impact on the Company's condensed consolidated financial statements and related disclosures upon adoption.

In December 2023, the FASB issued ASU 2023-09, *Income Taxes (Topic 740): Improvements to Income Tax Disclosures* ("ASU 2023-09"). ASU 2023-09 modifies the rules on income tax disclosures to enhance the transparency and decision-usefulness of income tax disclosures, particularly in the rate reconciliation table and disclosures about income taxes paid. The amendments are intended to address investors' requests for income tax disclosures that provide more information to help them better understand an entity's exposure to potential changes in tax laws and the ensuing risks and opportunities and to assess income tax information that affects cash flow forecasts and capital allocation decisions. The guidance also eliminates certain existing disclosure requirements related to uncertain tax positions and unrecognized deferred tax liabilities. The guidance is effective for all entities for annual periods beginning after December 15, 2025. All entities should apply the guidance prospectively but have the option to apply it retrospectively. Early adoption is permitted. The Company is continuing to assess the timing of adoption and the potential impacts of ASU 2023-09 on the condensed consolidated financial statements and related disclosures.

3. Fair Value Measurements

The Company's cash equivalents are classified within Level 1 and Level 2 of the fair value hierarchy. The Company's investments in marketable securities are classified within Level 2 of the fair value hierarchy.

The fair values of the Company's marketable securities are based on prices obtained from independent pricing sources. Consistent with the fair value hierarchy described in Note 2, *Summary of Significant Accounting Policies*, marketable securities with validated quotes from pricing services are reflected within Level 2, as they are primarily based on observable pricing for similar assets or other market observable inputs. Typical inputs used by these pricing

services include, but are not limited to, reported trades, benchmark yields, issuer spreads, bids, offers or estimates of cash flow, prepayment spreads and default rates. The Company performs validation procedures to ensure the reasonableness of this data. The Company performs its own review of prices received from the independent pricing services by comparing these prices to other sources. After completing the validation procedures, the Company did not adjust or override any fair value measurements provided by the pricing services as of September 30, 2024 and December 31, 2023.

The following tables summarize the Company's cash equivalents and marketable securities as of September 30, 2024 and December 31, 2023:

	September 30, 2024			
	Total	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
	(in thousands)			
Cash equivalents:				
Money market funds	$ 98,306	$ 98,306	$ —	$ —
Total cash equivalents	98,306	98,306	—	—
Marketable securities:				
U.S. government securities	41,964	—	41,964	—
U.S. corporate bonds	231,555	—	231,555	—
International corporate bonds	88,884	—	88,884	—
U.S. commercial paper	54,363	—	54,363	—
International commercial paper	31,570	—	31,570	—
U.S. certificates of deposit	2,203	—	2,203	—
U.S. municipal securities	18,988	—	18,988	—
Total marketable securities	469,527	—	469,527	—
	$ 567,833	$ 98,306	$ 469,527	$ —

	December 31, 2023			
	Total	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
	(in thousands)			
Cash equivalents:				
Money market funds	$ 59,852	$ 59,852	$ —	$ —
U.S. government securities	8,695	—	8,695	—
Total cash equivalents	68,547	59,852	8,695	—
Marketable securities:				
U.S. government securities	166,925	—	166,925	—
U.S. corporate bonds	210,198	—	210,198	—
International corporate bonds	97,675	—	97,675	—
U.S. commercial paper	23,370	—	23,370	—
International commercial paper	46,900	—	46,900	—
U.S. certificates of deposit	8,830	—	8,830	—
U.S. municipal securities	128,294	—	128,294	—
Total marketable securities	682,192	—	682,192	—
	$ 750,739	$ 59,852	$ 690,887	$ —

During the nine months ended September 30, 2024 and 2023, there were no transfers among the Level 1, Level 2 and Level 3 categories.

4. Investments

The following tables summarize the fair value and amortized cost of the Company's available-for-sale securities by major security type including gross unrealized gains and losses and credit losses as of September 30, 2024 and December 31, 2023:

	September 30, 2024				
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Credit Losses	Fair Value
			(in thousands)		
Assets:					
U.S. government securities	$ 41,933	$ 39	$ (8)	$ —	$ 41,964
U.S. corporate bonds	230,869	715	(29)	—	231,555
International corporate bonds	88,715	180	(11)	—	88,884
U.S. commercial paper	54,362	1	—	—	54,363
International commercial paper	31,571	—	(1)	—	31,570
U.S. certificates of deposit	2,203	—	—	—	2,203
U.S. municipal securities	18,973	21	(6)	—	18,988
	$ 468,626	$ 956	$ (55)	$ —	$ 469,527

	December 31, 2023				
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Credit Losses	Fair Value
			(in thousands)		
Assets:					
U.S. government securities	$ 167,165	$ 107	$ (347)	$ —	$ 166,925
U.S. corporate bonds	210,491	191	(484)	—	210,198
International corporate bonds	97,698	99	(122)	—	97,675
U.S. commercial paper	23,360	11	(1)	—	23,370
International commercial paper	46,935	3	(38)	—	46,900
U.S. certificates of deposit	8,830	—	—	—	8,830
U.S. municipal securities	128,527	26	(259)	—	128,294
	$ 683,006	$ 437	$ (1,251)	$ —	$ 682,192

As of September 30, 2024 and December 31, 2023, the Company had $3.2 million and $4.2 million, respectively, of accrued interest receivable relating to the Company's available-for-sale securities which is included within prepaid expenses and other current assets in the accompanying condensed consolidated balance sheets.

No accrued interest receivable was written off during the three and nine months ended September 30, 2024 and 2023. Realized gains or losses were immaterial for the three and nine months ended September 30, 2024 and 2023.

The following tables summarize the fair value and the unrealized losses of the Company's marketable securities that have been in a loss position for either less than twelve months or greater than twelve months as of September 30, 2024 and December 31, 2023:

	September 30, 2024					
	Less than 12 months		Greater than 12 months		Total	
	Fair Value	Unrealized Losses	Fair Value	Unrealized Losses	Fair Value	Unrealized Losses
	(in thousands)					
U.S. government securities	$ 7,883	$ (3)	$ 9,429	$ (5)	$ 17,312	$ (8)
U.S. corporate bonds	13,502	(16)	14,844	(13)	28,346	(29)
International corporate bonds	15,736	(8)	7,323	(3)	23,059	(11)
International commercial paper	3,958	(1)	—	—	3,958	(1)
U.S. municipal securities	6,471	(6)	2,500	—	8,971	(6)
	$ 47,550	$ (34)	$ 34,096	$ (21)	$ 81,646	$ (55)

	December 31, 2023					
	Less than 12 months		Greater than 12 months		Total	
	Fair Value	Unrealized Losses	Fair Value	Unrealized Losses	Fair Value	Unrealized Losses
	(in thousands)					
U.S. government securities	$ 52,521	$ (96)	$ 41,911	$ (251)	$ 94,432	$ (347)
U.S. corporate bonds	111,901	(246)	43,851	(238)	155,752	(484)
International corporate bonds	43,708	(87)	6,014	(35)	49,722	(122)
U.S. commercial paper	7,848	(1)	—	—	7,848	(1)
International commercial paper	37,300	(38)	—	—	37,300	(38)
U.S. municipal securities	90,095	(143)	31,345	(116)	121,440	(259)
	$ 343,373	$ (611)	$ 123,121	$ (640)	$ 466,494	$ (1,251)

As of September 30, 2024 and December 31, 2023, the unrealized losses on the Company's investments in U.S. government securities, U.S. corporate bonds, international corporate bonds, and U.S. municipal securities were caused by interest rate increases. The Company purchased those investments at a premium relative to their face amount. The current credit ratings are all within the guidelines of the investment policy of the Company and the Company does not expect the issuers to settle any security at a price less than the amortized cost basis of the investment. As of September 30, 2024, the Company does not intend to sell those investments and it is not probable that the Company will be required to sell the investments before recovery of their amortized cost basis.

As of September 30, 2024, all marketable securities held by the Company had remaining contractual maturities of one year or less, except for U.S. corporate bonds, international corporate bonds and U.S. municipal securities with a fair value of $24.5 million and maturities of one to two years.

As of December 31, 2023, all marketable securities held by the Company had remaining contractual maturities of one year or less, except for U.S. government securities, U.S. corporate bonds, international corporate bonds and U.S. municipal securities with a fair value of $110.3 million and maturities of one to two years.

All marketable securities, including those with remaining contractual maturities of more than one year, are classified as current assets on the balance sheet because they are considered to be "available-for-sale" and the Company can convert them into cash to fund current operations.

There have been no impairments of the Company's assets measured and carried at fair value during the nine months ended September 30, 2024 and the year ended December 31, 2023.

5. Accrued Expenses

The following table summarizes accrued expenses as of September 30, 2024 and December 31, 2023:

	September 30, 2024	December 31, 2023
	(in thousands)	
Accrued research and development costs	$ 26,754	$ 26,040
Restructuring	152	10,589
Employee-related	17,002	21,339
Professional services	8,918	8,589
Other	371	707
	$ 53,197	$ 67,264

6. Commitments and Contingencies

Operating Leases

The Company leases office space and certain equipment. All of the leases recorded on the condensed consolidated balance sheets are operating leases. The Company's active leases have remaining lease terms of up to five and a half years. Some of the leases include options to extend the leases for up to five years. These options were not included for the purpose of determining the right-of-use assets and associated lease liabilities as the Company determined that the renewal of these leases is not reasonably certain so only the original lease term was taken into consideration. The leases do not include any restrictions or covenants that had to be accounted for under the lease guidance.

The Company leased office space in two multi-tenant buildings in Cambridge, Massachusetts, consisting of 63,017 square feet in the first building, the Company's former headquarters at 215 First Street, Cambridge, Massachusetts, under an operating lease that expired on August 31, 2024 (the "First Building Lease") and 40,419 square feet in the second building, at 245 First Street, Cambridge, Massachusetts, under an operating lease that expired on August 31, 2024 (the "Second Building Lease"). The Company currently leases office space in a multi-tenant building in Cambridge, Massachusetts, consisting of 30,567 square feet, at the Company's new headquarters at 55 Cambridge Parkway (the "New Premises") under an operating lease that will expire on February 28, 2030. In addition, the Company leases office space in a multi-tenant building in Raleigh, North Carolina, consisting of 15,525 square feet under an operating lease that will expire on November 30, 2024.

In January 2024, the Company entered into the lease agreement (the "New Lease") for the New Premises. The accounting lease commencement in accordance with ASC 842, *Leases*, occurred on August 2, 2024, at which time the Company recorded the associated right-of-use asset of $11.5 million and the corresponding lease liability of $10.0 million. This includes a reclassification of $1.4 million from prepaid expenses and other current assets to right-of-use asset related to build out costs which were determined to be owned by the lessor. The contractual term of the New Lease commenced on September 1, 2024 (the "Term Commencement Date"), which is the date the Company relocated its headquarters to the New Premises. The Company's obligation for the payment of rent for the New Premises begins six months after the Term Commencement Date (the "Rent Commencement Date"). The New Lease has an initial term of approximately sixty-six months, measured from the Term Commencement Date (the "New Lease Term"). The Company has the option to extend the New Lease one time for an additional five-year period, subject to the terms therein; however, the exercise of the option to extend the lease term was not determined to be reasonably certain, and the Company will therefore recognize lease expense through the expiration of the New Lease Term in February 2030.

In connection with its entry into the New Lease, and as a security deposit, the Company has provided the Landlord a letter of credit in the amount of approximately $1.4 million, classified within other long-term assets on the condensed consolidated balance sheets, which the Company and the Landlord have agreed may be reduced to approximately $1.2 million following the third anniversary of the Rent Commencement Date, provided that no event

of default by the Company has occurred. The Landlord has the right to terminate the New Lease upon customary events of default.

Future minimum lease payments due under the noncancelable leases as of September 30, 2024 was as follows:

Years Ending December 31,	(In thousands)
Remaining 2024	$ (1,292)
2025	2,461
2026	2,976
2027	3,059
2028	3,144
Thereafter	3,773
Total lease payments	14,121
Less imputed interest	(3,847)
Present value of operating lease liabilities	$ 10,274

Legal Proceedings

On August 28, 2024, named plaintiff Darren Korver filed a purported federal securities class action lawsuit in the Southern District of New York against the Company and individuals, Barry E. Greene and Kimi Iguchi, or the "Securities Class Action." The complaint in the Securities Class Action alleges violations of U.S. securities laws under Sections 10(b) and 20(a) of the Securities Exchange Act of 1934 and Rule 10b-5 promulgated thereunder and seeks an as-yet unspecified amount of damages allegedly sustained by parties who purchased Sage stock between April 12, 2021 and July 23, 2024, as well as applicable attorneys' fees and costs.

The Company denies any allegations of wrongdoing and intends to vigorously defend against the Securities Class Action.

On October 16, 2024, the Company received a subpoena from the Enforcement Division of the SEC requesting documents and information related to the Company's NDA for zuranolone for the treatment of MDD, including communications with the FDA and any communications containing material nonpublic information. The Company is cooperating with the SEC and intends to provide information responsive to the SEC's requests.

At this time, the Company is unable to predict the outcome of the Securities Class Action or the SEC investigation or reasonably estimate a range of possible losses.

License Agreements

CyDex License Agreement

In September 2015, the Company amended and restated its existing commercial license agreement with CyDex Pharmaceuticals, Inc. ("CyDex"), a wholly owned subsidiary of Ligand Pharmaceuticals Incorporated. Under the terms of the commercial license agreement as amended and restated, CyDex has granted to the Company an exclusive license to CyDex's Captisol drug formulation technology and related intellectual property for the manufacture of pharmaceutical products incorporating brexanolone and the Company's compound known as SAGE-689, and the development and commercialization of the resulting products for the treatment, prevention or diagnosis of any disease or symptom in humans or animals other than (i) the ocular treatment of any disease or condition with a formulation, including a hormone; (ii) topical ocular treatment of inflammatory conditions; (iii) treatment and prophylaxis of fungal infections in humans; and (iv) any ocular treatment for retinal degeneration. The Company is required to pay a royalty to CyDex on sales of brexanolone and will be required to pay a royalty on any sales of SAGE-689, if such product candidate is successfully developed in the future. Royalty rates are in the low single digits based on levels of net sales. From the effective date of the agreement to September 30, 2024, the Company has paid to CyDex $1.0 million for licensing fees, which was recorded as research and development expense.

Under the amended and restated license agreement with CyDex, the Company agreed to make milestone payments on the achievement of clinical development and regulatory milestones in the amount of up to $0.8 million in clinical milestones and up to $3.8 million in regulatory milestones for each of the first two fields with respect to brexanolone; up to $1.3 million in clinical milestones and up to $8.5 million in regulatory milestones for each of the third and fourth fields with respect to brexanolone; and up to $0.8 million in clinical milestones and up to $1.8 million in regulatory milestones for one field with respect to SAGE-689. From the effective date of the agreement to September 30, 2024, the Company has recorded research and development expense and made cash payments of $3.6 million related to these clinical development and regulatory milestones and has recorded an intangible asset and made a cash payment of $3.0 million related to these regulatory milestones.

For the three and nine months ended September 30, 2024 and 2023, the Company did not record any expense or intangible asset, or make any milestone payments related to clinical development or regulatory milestones for the brexanolone program or SAGE-689 under the license agreement with CyDex.

University of California License Agreements

In October 2013, the Company entered into a non-exclusive license agreement with the Regents of the University of California ("the Regents") under which the Company was granted a non-exclusive license to certain clinical data and clinical material related to brexanolone for use in the development and commercialization of biopharmaceutical products in the licensed field, including status epilepticus and postpartum depression. In May 2014, the license agreement was amended to add the treatment of essential tremor to the licensed field of use, materials and milestone fee provisions of the agreement. The Company paid to the Regents clinical development milestones of $0.1 million, prior to December 31, 2015; no other milestones are outstanding under this non-exclusive license agreement. The Company is required to pay royalties of less than 1% on net sales for a period of fifteen years following the sale of the first product developed using the data and materials, and the Company began to pay these royalties in 2019. Unless terminated by operation of law or by acts of the parties, the license will terminate on the earlier to occur of (i) 27 years after the effective date or (ii) 15 years after the last-derived product is first commercially sold.

In June 2015, the Company entered into an exclusive license agreement with the Regents whereby the Company was granted an exclusive license to certain patent rights related to the use of allopregnanolone to treat various diseases. In exchange for such license, the Company paid an upfront payment of $50,000 and was required to make payments of $15,000 for annual maintenance fees until the calendar year following the first sale of ZULRESSO. The Company is obligated to make milestone payments following the achievement of specified regulatory and sales milestones of up to $0.7 million and $2.0 million in the aggregate, respectively. The Company pays royalties at a low single digit percentage of net sales of ZULRESSO, subject to specified minimum annual royalty amounts. Unless terminated by operation of law or by acts of the parties under the terms of the agreement, the license agreement will terminate when the last-to-expire patents or last-to-be abandoned patent applications expire, whichever is later. From the effective date of the agreement to September 30, 2024, the Company has recorded research and development expense and made cash payments of $0.3 million related to these regulatory and sales milestones; and has recorded an intangible asset and made a cash payment of $0.5 million related to these regulatory and sales milestones.

For the three and nine months ended September 30, 2024 and 2023, the Company did not record any expense or make any milestone payments under the license agreements with the Regents.

7. Collaboration Agreements

Shionogi

In June 2018, the Company entered into a strategic collaboration with Shionogi for the clinical development and commercialization of zuranolone for the treatment of MDD and other potential indications in Japan, Taiwan and South Korea (the "Shionogi Territory"). In October 2018, the Company entered into a supply agreement with Shionogi for the Company to supply zuranolone clinical material to Shionogi.

Under the terms of the collaboration agreement, Shionogi is responsible for all clinical development and regulatory filings for zuranolone in MDD and other indications in the Shionogi Territory and would be responsible for commercialization of zuranolone in the Shionogi Territory, if zuranolone is successfully developed and obtains marketing approval in any of the countries within the Shionogi Territory. Shionogi was required to make an upfront payment to the Company of $90.0 million, and the Company will be eligible to receive additional payments of up to $485.0 million if certain regulatory and commercial milestones are achieved by Shionogi. The potential future milestone payments include up to $70.0 million for the achievement of specified regulatory milestones, up to $30.0 million for the achievement of specified commercialization milestones, and up to $385.0 million for the achievement of specified net sales milestones. The Company is eligible to receive tiered royalties on sales of zuranolone in the Shionogi Territory, if development efforts are successful, with tiers averaging in the low to mid-twenty percent range, subject to other terms of the agreement. As between the Company and Shionogi, the Company maintains exclusive rights to develop and commercialize zuranolone outside of the Shionogi Territory. The upfront cash payment and any payments for milestones and royalties are non-refundable and non-creditable. Due to the uncertainty of pharmaceutical development and the high historical failure rates generally associated with drug development, the Company may not receive any milestone payments or any royalty payments from Shionogi.

The Company concluded that Shionogi meets the definition of a customer because the Company is delivering intellectual property and know-how rights for the zuranolone program in support of territories in which the parties are not jointly sharing the risks and rewards. In addition, the Company determined that the Shionogi collaboration met the requirements to be accounted for as a contract, including that it is probable that the Company will collect the consideration to which the Company is entitled in exchange for the goods or services that will be delivered to Shionogi.

The Company determined that the performance obligations in the Shionogi collaboration agreement included the license to zuranolone and the supply of certain materials during the clinical development phase, which includes the supply of active pharmaceutical ingredient (“API”). The performance obligation related to the license to zuranolone was determined to be distinct from other performance obligations and therefore was a separate performance obligation for which control was transferred upon signing. The obligation to provide certain clinical materials, including API for use during the development period, was determined to be a separate performance obligation. Given that Shionogi is not obligated to purchase any minimum amount or quantities of commercial API, the supply of API to Shionogi for commercial use was determined to be an option for Shionogi, rather than a performance obligation of the Company at contract inception and will be accounted for if and when exercised. The Company also determined that there was no separate material right in connection with the supply of API for commercial use as the expected pricing was not at a discount. Given this fact pattern, the Company has concluded the agreement has two performance obligations.

Under the clinical supply agreement, the Company is obligated to manufacture and supply to Shionogi (i) clinical quantities of API reasonably required by Shionogi for the development of licensed products in the Shionogi Territory under the collaboration and license agreement and (ii) quantities of drug product reasonably required for use by Shionogi in Phase 1 clinical trials of zuranolone in the Shionogi Territory under the collaboration and license agreement, in the quantities agreed to by the parties. Collaboration revenue from the clinical supply agreement, which excludes the $90.0 million upfront payment, pertains to the clinical material sold under the terms of the clinical supply agreement. The Company records the costs related to the clinical supply agreement in research and development expense on its condensed consolidated statements of operations and comprehensive loss. For the three months ended September 30, 2024 and 2023 the Company did not recognize any collaboration revenue from the Company's agreement with Shionogi. For the nine months ended September 30, 2024 and 2023 the Company recognized $0.6 million and $14 thousand, respectively, of collaboration revenue from the Company's agreement with Shionogi.

The Company completed the evaluation of the SSP of each of the performance obligations and determined that the standalone selling price of the license performance obligation was $90.0 million. The Company recognized the transaction price allocated to the license performance obligation of $90.0 million as revenue during the quarter upon delivery of the license to Shionogi and resulting ability of Shionogi to use and benefit from the license, which was in the three months ended June 30, 2018. The remaining transaction price related to the performance obligation for the supply of certain clinical material is not significant. The potential milestone payments that the Company is eligible to receive were excluded from the transaction price, as all milestone amounts were fully constrained based on the probability of achievement. The Company will re-evaluate the transaction price at the end of each reporting period and as uncertain events are resolved or other changes in circumstances occur, and, if necessary, adjust its estimate of the transaction price.

Biogen

In November 2020, the Company entered into the Biogen Collaboration Agreement to jointly develop and commercialize SAGE-217 products and SAGE-324 products. Concurrently, the Company also entered into a stock purchase agreement with BIMA (the "Biogen Stock Purchase Agreement") under which BIMA purchased shares of the Company's common stock. The Biogen Collaboration Agreement became effective on December 28, 2020 (the "Effective Date").

Under the terms of the Biogen Collaboration Agreement, the Company granted Biogen co-exclusive licenses to develop and commercialize SAGE-217 products and SAGE-324 products (each, a "Product Class" and together, the "Licensed Products") in the U.S., an exclusive license to develop and commercialize SAGE-217 products in all countries of the world other than the U.S. and the Shionogi Territory, and an exclusive license to develop and commercialize SAGE-324 products in all countries of the world other than the U.S. The Company refers to the territories outside the U.S. to which Biogen has rights under the Biogen Collaboration Agreement with respect to the applicable Licensed Product as the "Biogen Territory".

In September 2024, Biogen notified the Company of its termination of the Biogen Collaboration Agreement solely with respect to products containing the Company's SAGE-324 products on a worldwide basis, effective February 17, 2025 (the "SAGE-324 Termination"), in accordance with the required notice period. As a result of the SAGE-324 Termination, as of February 17, 2025 (the "SAGE-324 Termination effective date"), all licenses granted by the Company to Biogen or by Biogen to the Company regarding the SAGE-324 products shall expire with respect to the SAGE-324 products on a worldwide basis. Biogen shall grant to the Company an irrevocable, perpetual license for any Biogen background technology, Biogen collaboration technology or joint collaboration technology that exists as of February 17, 2025 with respect to the SAGE-324 products, in each case in accordance with the terms of the Biogen Collaboration Agreement.

In connection with the effectiveness of the Biogen Collaboration Agreement and the closing of the sale of shares to BIMA in December 2020, the Company received $1.5 billion in consideration, comprised of an upfront payment of $875.0 million and the $650.0 million purchase price for 6,241,473 newly issued shares of the Company's common stock (the "Biogen Shares"). As a result of the purchase of the Biogen Shares, Biogen is a related party of the Company.

The Company was initially eligible to receive additional payments of up to $1.6 billion from Biogen if certain regulatory and commercial milestones were achieved. The potential future milestone payments for SAGE-217 products included up to $475.0 million for the achievement of specified regulatory and commercial milestones, including a milestone payment of $75.0 million for the first commercial sale of ZURZUVAE for the treatment of women with PPD in the U.S. and, if approved, a milestone payment of $150.0 million for the first commercial sale of ZURZUVAE for the treatment of MDD in the U.S., and up to $300.0 million for the achievement of specified net sales milestones. In the fourth quarter of 2023, the Company achieved the $75.0 million milestone for the first commercial sale of ZURZUVAE in PPD in the U.S. Because the Company and Biogen have agreed not to pursue further development of zuranolone for the treatment of MDD in the U.S., the Company will not receive the $150.0 million milestone payment for the first commercial sale of ZURZUVAE for the treatment of MDD in the U.S.

The potential future milestone payments for SAGE-324 products initially included up to $520.0 million for the achievement of specified regulatory and commercial milestones and up to $300.0 million for the achievement of specified net sales milestones. As a result of the SAGE-324 Termination, the Company will not receive any milestone payments for SAGE-324 products under the Biogen Collaboration Agreement.

The Company is also eligible to receive tiered royalties on net sales of SAGE-217 products in the Biogen Territory at percentage rates ranging from the high teens to low twenties.

Due to the uncertainty of pharmaceutical development and the high historical failure rates generally associated with drug development, and the challenges of launching and commercializing a product, if approved, the Company may never receive any additional milestone payments or any royalty payments under the Biogen Collaboration Agreement.

Development and commercialization activities in the U.S. under the Biogen Collaboration Agreement are conducted pursuant to plans agreed to by the Company and Biogen and overseen by a joint steering committee that consists of an equal number of representatives of each party. The Company and Biogen share equally in the costs for development and commercialization, as well as the profits and losses upon FDA approval and commencement of product sales, in the U.S., subject to the Company's opt-out right described below. Biogen is solely responsible for all development activities and costs related to any development and commercialization of SAGE-217 products and, prior to the SAGE-324 Termination, SAGE-324 products, for the Biogen Territory, and the Company will receive royalties on any sales in the Biogen Territory, as mentioned above. Biogen is the principal and records sales of SAGE-217 products globally.

The Company is obligated to supply API and bulk drug product for the Biogen Territory and API, bulk drug product and final drug product for the U.S. to support development and commercialization activities. Biogen has the right to assume manufacturing responsibilities for API for the Biogen Territory at any time during the term of the agreement, and the agreement further provides that Biogen will, within a reasonable period of time after the Effective Date, assume manufacturing responsibility for bulk drug product for the Biogen Territory.

Unless terminated earlier, the Biogen Collaboration Agreement will continue on a Licensed Product-by-Licensed Product and country-by-country basis until the date on which (a) in any country in the Biogen Territory, the royalty term has expired for all Licensed Products in a Product Class in such country, and (b) for the U.S., the parties agree to permanently cease to commercialize all Licensed Products in a Product Class. Biogen also has the right to terminate the Biogen Collaboration Agreement for convenience in its entirety, on a Product Class-by-Product Class basis (such as the SAGE-324 Termination) or as to a particular region, upon advance written notice. The Company has an opt-out right to convert the co-exclusive licenses in the U.S. to an exclusive license to Biogen on a Product Class-by-Product Class basis. Following the exercise of the opt-out right, the Company would no longer share equally in the profits and losses in the U.S. and would be entitled to receive certain royalty payments at percentage rates ranging from the high teens to low twenties and additional sales milestones.

The Company concluded that the Biogen Collaboration Agreement and the Biogen Stock Purchase Agreement should be combined and treated as a single arrangement for accounting purposes as the agreements were entered into

contemporaneously and in contemplation of one another. The Company determined that the combined agreements had elements that were within the scope of Topic 606 and Topic 808.

As of the Effective Date, the Company identified the following promises in the Biogen Collaboration Agreement that were evaluated under the scope of Topic 606: delivery of (i) a co-exclusive license for SAGE-217 products in the U.S.; (ii) an exclusive license for SAGE-217 products in the Biogen Territory; (iii) a co-exclusive license for SAGE-324 products in the U.S.; (iv) an exclusive license for SAGE-324 products in the Biogen Territory; (v) the clinical manufacturing supply of API and bulk drug product for SAGE-217 products in the Biogen Territory; and (vi) the clinical manufacturing supply of API and bulk drug product for SAGE-324 products in the Biogen Territory.

The Company also evaluated whether certain options outlined within the Biogen Collaboration Agreement represented material rights that would give rise to a performance obligation and concluded that none of the options convey a material right to Biogen and therefore are not considered separate performance obligations within the Biogen Collaboration Agreement.

The Company assessed the above promises at contract inception and determined that the co-exclusive licenses for SAGE-217 products and SAGE-324 products in the U.S. are reflective of a vendor-customer relationship and therefore represent performance obligations within the scope of Topic 606. The co-exclusive license for SAGE-217 products and SAGE-324 products in the U.S. are considered functional intellectual property and distinct from other promises under the contract. The exclusive licenses for SAGE-217 products and SAGE-324 products in the Biogen Territory are considered functional licenses that are distinct in the context of the Biogen Collaboration Agreement as Biogen can benefit from the licenses on its own or together with other readily available resources. As the co-exclusive licenses in the U.S. and the exclusive licenses in the Biogen Territory are delivered at the same time, they are considered one performance obligation at contract inception. The clinical manufacturing supply of API and bulk drug product for SAGE-217 products and SAGE-324 products for the Biogen Territory are considered distinct in the context of the Biogen Collaboration Agreement as Biogen can benefit from the manufacturing services together with the licenses transferred by the Company at the inception of the agreement. Therefore, each represents a separate performance obligation within a contract with a customer under the scope of Topic 606 at contract inception.

The Company determined the transaction price under Topic 606 at the inception of the Biogen Collaboration Agreement to be $1.1 billion, consisting of the upfront payment of $875.0 million plus $232.5 million in excess proceeds from the equity investment under the Biogen Stock Purchase Agreement, when measured at fair value, plus future variable consideration for manufacturing supply of clinical API and bulk drug product for the Biogen Territory. The amount of variable consideration related to the future manufacturing services was not material. At inception, the Company determined that any variable consideration related to clinical development and regulatory or commercial milestones is deemed to be fully constrained and therefore excluded from the transaction price due to the high degree of uncertainty and risk associated with these potential payments, as the Company determined that it could not assert that it was probable that a significant reversal in the amount of cumulative revenue recognized will not occur. The Company also determined that royalties and sales milestones relate solely to the licenses of intellectual property and are therefore excluded from the transaction price under the sales- or usage-based royalty exception of Topic 606. Revenue related to these royalties and sales milestones will only be recognized when the associated sales occur, and relevant thresholds are met. As such, the entirety of the $1.1 billion transaction price was allocated to the transfer of the co-exclusive licenses for SAGE-217 products and SAGE-324 products in the U.S. and the exclusive licenses for SAGE-217 products and SAGE-324 products in the Biogen Territory and was recognized as license revenue during the year ended December 31, 2020.

In the fourth quarter of 2023, the Company achieved a milestone for the first commercial sale of ZURZUVAE for the treatment of women with PPD in the U.S. and recognized license and milestone revenue – related party of $75.0 million during the fourth quarter of the year ended December 31, 2023. Payment of the $75.0 million milestone was received during January 2024. During the three and nine months ended September 30, 2024 and 2023, no license and milestone revenue – related party was recognized related to the Biogen Collaboration Agreement.

The Company considers the collaborative activities associated with the co-development, co-commercialization, and co-manufacturing of SAGE-217 products and, through the SAGE-324 Termination effective date, SAGE-324 products in the U.S. to be separate units of account within the scope of Topic 808 as the Company and Biogen are both active participants in the development and commercialization activities and are exposed to significant risks and rewards that are dependent on the development and commercial success of the activities in the arrangement.

While Biogen is considered the principal in transactions with customers for the sale of ZURZUVAE globally, the Company is also engaged in significant commercialization activities, including maintaining its own U.S. direct sales force. The Company presents its proportionate share of Biogen's ZURZUVAE sales to customers in the U.S. as collaboration revenue - related party. Payments to or reimbursements from Biogen related to the agreement of the parties to share equally in all revenue and costs are accounted for as an increase to collaboration revenue, an increase to or reduction of cost of revenues, research and development expenses, or selling, general and administrative expenses, in the condensed consolidated statement of operations and comprehensive loss, depending on the nature of the activity.

To record its proportionate share of collaboration revenue from Biogen's sales of ZURZUVAE to customers in the U.S., the Company utilizes certain information from Biogen, including revenue from the sale of the product and associated reserves on revenue.

The following table summarizes the Company's proportionate share of the activity under the Biogen Collaboration Agreement accounted for under Topic 808, including activities associated with the sale of ZURZUVAE in the U.S., as well as costs during the periods related to the development of SAGE-217 products and SAGE-324 products, as reflected in our condensed consolidated statement of operations and comprehensive loss:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2024	2023	2024	2023
	(in thousands)		(in thousands)	
Collaboration revenue - related party	$ 11,028	$ —	$ 24,661	$ —
Cost of revenues	1,553	—	4,048	—
Research and development expenses	6,493	34,855	18,467	84,705
Selling, general and administrative expenses	14,792	25,908	40,847	73,626

The revenue, cost and expense categories in the table below reflect the following reimbursement amounts to (from) Biogen to account for the sharing of economics under the Biogen Collaboration Agreement:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2024	2023	2024	2023
	(in thousands)		(in thousands)	
Collaboration revenue - related party	$ (11,028)	$ —	$ (24,661)	$ —
Cost of revenues	(905)	—	(2,033)	—
Research and development expenses	(5,423)	(28,204)	(14,405)	(67,903)
Selling, general and administrative expenses	2,419	5,835	5,744	16,345

As of September 30, 2024, the Company recorded a collaboration receivable - related party of $14.9 million in the condensed consolidated balance sheet, all of which is related to net reimbursement for the amounts due for the three months ended September 30, 2024. As of December 31, 2023, the Company recorded a collaboration receivable – related party of $83.0 million, consisting of $8.0 million of net reimbursement for amounts due for the three months ended December 31, 2023 and the $75.0 million milestone achieved. During the nine months ended September 30, 2024, no payments were made to Biogen and the Company received $103.1 million from Biogen for the amounts due for the three months ended December 31, 2023 and the six months ended June 30, 2024. During the

nine months ended September 30, 2023, no payments were made to Biogen and the Company received $42.7 million from Biogen for the amounts due for the three months ended December 31, 2022 and the six months ended June 30, 2023.

Accounting for the Biogen Stock Purchase Agreement

In connection with the execution of the Biogen Collaboration Agreement, the Company and BIMA entered into the Biogen Stock Purchase Agreement. Pursuant to the Biogen Stock Purchase Agreement, the Company sold the Biogen Shares to BIMA at a price of approximately $104.14 per share for aggregate consideration of $650.0 million. The sale of the shares to BIMA closed on December 31, 2020.

The Biogen Stock Purchase Agreement includes certain standstill provisions that terminate on the earliest of (i) a specified regulatory milestone under the Biogen Collaboration Agreement, (ii) the date one year following the termination of the Biogen Collaboration Agreement and (iii) the seventh anniversary of the Effective Date.

The Company determined the fair value of the common shares was $417.5 million, which was $232.5 million less than the proceeds received from BIMA for the issuance of the Company's common stock under the Biogen Stock Purchase Agreement. As such, the $232.5 million in excess proceeds was included in the $1.1 billion transaction price of the Biogen Collaboration Agreement determined above.

8. Common Stock

As of September 30, 2024 and December 31, 2023, the Company had 120,000,000 authorized shares of common stock, par value $0.0001 per share.

Each share of common stock entitles the holder to one vote on all matters submitted to a vote of the Company's stockholders. Common stockholders are entitled to receive dividends, as may be declared by the Board of Directors of the Company (the "Board"), if any. As of September 30, 2024 and December 31, 2023, no dividends have been declared.

As of September 30, 2024, the Company had received 3,033 shares of the Company's common stock from a then-employee as consideration for exercises of stock options. The total cost of shares held in treasury at September 30, 2024 was $0.4 million.

Sales Agreement

On September 16, 2024, the Company entered into a Sales Agreement (the "ATM Sales Agreement") with TD Securities (USA) LLC, as sales agent ("TD Cowen"), with respect to an "at the market offering" program pursuant to which the Company may offer and sell shares of its common stock having an aggregate offering price of up to $250.0 million (the "Shares"), from time to time through TD Cowen (the "ATM Offering"). Upon the Company's entry into the ATM Sales Agreement, the prior sales agreement with Cowen and Company, LLC, an affiliate of TD Cowen, dated November 7, 2023 (the "Original Sales Agreement") was terminated. At the time of such termination, $241.7 million out of an aggregate of $250.0 million of shares remained unsold under the Original Sales Agreement.

Upon delivery of a placement notice, and subject to the terms and conditions of the Sales Agreement, TD Cowen may sell the Shares by methods deemed to be an "at the market offering" as defined in Rule 415(a)(4) promulgated under the Securities Act of 1933, as amended. The Company may sell the Shares in amounts and at times to be determined by the Company from time to time subject to the terms and conditions of the Sales Agreement, but the Company has no obligation to sell any of the Shares in the ATM Offering.

The Company or TD Cowen may suspend or terminate the ATM Offering upon notice to the other parties and subject to other conditions. TD Cowen will act as sales agent on a commercially reasonable efforts basis consistent with its normal trading and sales practices, applicable state and federal laws, rules and regulations, and the rules of The Nasdaq Global Market.

The Company has agreed to pay TD Cowen commission for its service in acting as agent in the sale of the Shares in the amount of up to 3.0% of the gross proceeds from the sale of the Shares pursuant to the ATM Sales Agreement.

During the three months ended September 30, 2024, the Company did not sell any shares under the Sales Agreement. As of September 30, 2024, $250.0 million of shares remained available for issuance and sale under the ATM Sales Agreement.

During the nine months ended September 30, 2024 the Company sold an aggregate of 700,000 shares under the Original Sales Agreement at an average price per share of $11.90 and received gross proceeds of approximately $8.3 million, before deducting commissions, underwriting discounts, and offering costs of $0.3 million.

9. Stock-Based Compensation

Equity Plans

On July 2, 2014, the stockholders of the Company approved the 2014 Stock Option and Incentive Plan (the "2014 Plan"), which became effective immediately prior to the completion of the Company's initial public offering. The 2014 Plan provided for the grant of restricted stock awards, restricted stock units, incentive stock options and non-statutory stock options. The 2014 Plan replaced the Company's 2011 Stock Option and Grant Plan (the "2011 Plan").

On June 10, 2024, the stockholders of the Company approved the 2024 Equity Incentive Plan (the "2024 Plan"), which had been previously approved by the Board. Upon stockholder approval, the 2024 Plan became effective immediately and replaced the 2014 Plan. The 2024 Plan provides for the grant of incentive stock options, non-statutory stock options, stock appreciation rights, restricted stock, restricted stock units, other stock-based awards, and cash awards. The total number of shares initially reserved for issuance under the 2024 Plan is equal to the sum of (i) 5,500,000 shares of the Company's common stock and (ii) such additional number of shares of the Company's common stock (up to 11,002,166 shares) as is equal to the number of shares of common stock subject to awards granted under the 2014 Plan that were outstanding as of June 10, 2024, and which awards expire, terminate or are otherwise surrendered, cancelled, forfeited or repurchased by the Company at their original issuance price pursuant to a contractual repurchase right (subject, however, in the case of incentive stock options, to any limitations under the Internal Revenue Code of 1986, as amended, and any regulations thereunder).

The Company no longer grants stock options or other awards under either its 2014 Plan or its 2011 Plan, and there are no stock options or other awards outstanding under the 2011 Plan. Any stock options and other awards outstanding under the 2014 Plan remain outstanding and effective in accordance with their terms.

On December 15, 2016, the Board approved the 2016 Inducement Equity Plan (as amended and restated, the "2016 Plan"). The 2016 Plan provides for the grant of equity awards to individuals who have not previously been an employee or a non-employee director of the Company to induce them to accept employment and to provide them with a proprietary interest in the Company. On September 20, 2018, the Board amended the 2016 Plan to increase the total number of shares reserved for issuance by 1,200,000 shares. On April 16, 2024, the Board amended the 2016 Plan to reduce the number of shares reserved for issuance thereunder to 428,074 shares and to provide that no further grants may be made under the 2016 Plan after April 16, 2024.

Terms of equity grants, including vesting requirements, are determined by the Board or the Compensation Committee of the Board, subject to the provisions of the applicable plan. Stock options granted by the Company that are not performance-based are considered time-based because they vest based on the continued service of the grantee with the Company during a specified period following grant. These awards, when granted to employees, generally vest ratably over four years, with 25% vesting at the one-year anniversary and generally expire 10 years after the date of grant.

As of September 30, 2024, the total number of shares underlying outstanding awards under the 2024 Plan, the 2014 Plan and the 2016 Plan was 10,124,258, and the total number of shares available for future issuance under the 2024 Plan was 6,308,117 shares.

On June 16, 2022, the Company's stockholders approved an amendment to the amended 2014 Employee Stock Purchase Plan (the "ESPP"), which had been previously approved by the Board, to add 300,000 shares of common stock to the ESPP. On June 15, 2023, the Company's stockholders approved another amendment to the ESPP, which had been previously approved by the Board, to add an additional 500,000 shares of common stock to the ESPP. As amended, a total of 1,082,000 shares of common stock have been authorized for issuance under the ESPP. As of September 30, 2024, the total number of shares available for future issuance under the ESPP was 419,194 shares.

Option Exchange Program

On January 23, 2024, the Company initiated a tender offer related to a one-time stock option exchange program pursuant to which eligible non-executive officer employees were given the opportunity to exchange certain outstanding stock options (the "Eligible Options") to purchase shares of the Company's common stock for replacement options to purchase a lesser number of shares of common stock (the "Option Exchange") upon the terms and subject to the conditions set forth in the Offer to Exchange Eligible Options for Replacement Options dated January 23, 2024 (the "Offer to Exchange"). Stock options eligible for exchange had an exercise price per share of $35.00 or greater, in addition to certain other requirements, and were exchanged for replacement options with an exercise price per share equal to the fair market value of the Company's common stock on the date of grant of the replacement options, which was February 21, 2024. The consummation of the Option Exchange was subject to approval by the Company's stockholders, which approval was received at the special meeting of stockholders held on January 31, 2024. The Company accepted for exchange Eligible Options to purchase a total of 3,079,608 shares of the Company's common stock. All tendered Eligible Options were cancelled effective as of February 21, 2024, and promptly thereafter, in exchange thereof, the Company granted replacement options for a total of 1,483,113 shares of the Company's common stock, pursuant to the terms of the Offer to Exchange and the 2014 Plan. The exercise price per share of the replacement options was $22.20 per share, which was the closing price per share of the Company's common stock on the Nasdaq Global Market on February 21, 2024. The replacement options vest over 18 months from the date of grant and have a term of seven years.

The Company expects to incur a total of $1.7 million of additional stock-based compensation expense as a result of the Option Exchange, to be recognized over the 18-month vesting period of the replacement options.

Restricted Stock Units

The following table summarizes activity relating to time-based restricted stock units and performance restricted stock units:

	Shares	Weighted Average Grant Date Fair Value
Outstanding as of December 31, 2023	3,088,394	$ 34.27
Granted	1,302,160	$ 23.23
Vested	(247,510)	$ 30.45
Forfeited	(332,108)	$ 33.13
Outstanding as of September 30, 2024	3,810,936	$ 30.84

Time-based restricted stock units

During the three and nine months ended September 30, 2024, the Company granted 19,680 and 901,705 time-based restricted stock units, respectively, to its employees.

During the three and nine months ended September 30, 2023, the Company granted 1,382,300 and 1,712,917 time-based restricted stock units, respectively, to its employees and consultants.

During the three and nine months ended September 30, 2024, there were 9,611 and 89,650 time-based restricted stock units that vested, respectively. The fair value on the date of vesting for the three and nine months ended September 30, 2024 was $0.1 million and $1.8 million, respectively.

During the three and nine months ended September 30, 2023, there were 12,385 and 40,962 time-based restricted stock units that vested, respectively. The fair value on the date of vesting for the three and nine months ended September 30, 2023 was $0.2 million and $1.6 million, respectively.

As of September 30, 2024, 2,263,534 time-based restricted stock units were both outstanding and unvested, and the total unrecognized stock-based compensation expense related to these awards was $23.1 million.

Performance restricted stock units

During the three and nine months ended September 30, 2024, the Company granted 5,400 and 400,455 performance restricted stock units, respectively, to its employees.

During the three and nine months ended September 30, 2023, the Company granted 19,248 and 881,569 performance restricted stock units, respectively, to its employees and consultants.

The majority of the performance restricted stock units vest upon the achievement of certain clinical and regulatory development milestones related to product candidates and certain commercial milestones. Certain performance restricted stock units vest upon the Company reaching specified measures of total stockholder return.

Recognition of stock-based compensation expense associated with performance restricted stock units, except for those with milestones that are measures of total stockholder return, commences when the performance condition is considered probable of achievement, using management's best estimates, which consider the inherent risk and uncertainty regarding the future outcomes of the milestones. Recognition of stock-based compensation expense associated with performance restricted stock units with milestones that are measures of total stockholder return commences on the grant date and is recorded independently of the vesting outcomes of the grants.

As of September 30, 2024, for performance restricted stock units that were outstanding, the achievement of the milestones that had not been achieved was considered not probable, and therefore no expense has been recognized related to these awards as of the three and nine months ended September 30, 2024.

During the nine months ended September 30, 2024, the criteria for one commercial milestone for the vesting of outstanding performance restricted stock units was achieved. The fair value of the performance restricted stock units that vested upon achievement was $1.4 million and the Company recognized $2.8 million of stock-based compensation expense related to these awards during the three months ended June 30, 2024 and $0.8 million of stock-based compensation expense related to these awards during the three months ended September 30, 2024.

As of September 30, 2023, the criteria for the achievement of one commercial milestone that is the criteria for vesting of performance restricted stock units was considered probable, but had not been met, and therefore $2.7 million of stock-based compensation expense was recognized related to these awards for the three months ended September 30, 2023.

During the nine months ended September 30, 2023, the criteria for two regulatory development milestones for outstanding performance restricted stock units were achieved. The total fair value of the two performance restricted stock units that vested upon achievement of the milestones was $8.1 million and the Company recognized stock-based compensation expense related to these milestones of $11.4 million during the nine months ended September 30, 2023.

During the three and nine months ended September 30, 2024, the Company recorded $0.3 million and $1.1 million of stock-based compensation expense, respectively, related to performance restricted stock units for which vesting is tied to total stockholder return. During the three and nine months ended September 30, 2023, the Company

recorded $0.2 million and $0.5 million of stock-based compensation expense, respectively, related to performance restricted stock units for which vesting is tied to total stockholder return.

As of September 30, 2024, 1,547,402 performance restricted stock units were both outstanding and unvested, and the total unrecognized stock-based compensation expense related to these awards was $62.2 million.

Stock Option Rollforward

The following table summarizes activity related to time-based and performance-based stock options:

	Shares	Weighted Average Exercise Price	Weighted Average Remaining Life (in years)	Aggregate Intrinsic Value (in thousands)
Outstanding as of December 31, 2023	8,118,041	$ 76.02	5.66	$ 475
Granted	2,202,215	$ 21.58		
Exercised	(10,062)	$ 7.69		
Forfeited	(3,955,475)	$ 85.83		
Expired	(41,397)	$ 19.43		
Outstanding as of September 30, 2024	6,313,322	$ 51.37	5.64	$ —
Exercisable as of September 30, 2024	3,924,279	$ 60.18	4.50	$ —

As of September 30, 2024, the Company had unrecognized stock-based compensation expense related to its outstanding and unvested time-based stock option awards of $33.8 million, which is expected to be recognized over the remaining weighted average vesting period of 2.74 years.

The intrinsic value of stock options exercised during the nine months ended September 30, 2024 and 2023 was $0.1 million and $1.9 million, respectively.

Performance-Based Stock Options

Recognition of stock-based compensation expense associated with performance-based stock options commences when the performance condition is considered probable of achievement, using management's best estimates, which consider the inherent risk and uncertainty regarding the future outcomes of the milestones.

As of September 30, 2024 and 2023, for performance-based stock option grants that were outstanding, the achievement of the milestones that had not been met was considered not probable, and therefore no expense has been recognized related to these awards during the nine months ended September 30, 2024 and 2023, respectively.

During the three and nine months ended September 30, 2024 and 2023, the Company granted no stock options to purchase shares of common stock that contain performance-based vesting criteria.

During the three and nine months ended September 30, 2024, no milestones were achieved under performance-based stock options.

During the three and nine months ended September 30, 2023, one regulatory development milestone was achieved pursuant to performance-based stock options granted in connection with the hiring of the Company's chief executive officer. During the three months ended September 30, 2023, the Company recognized stock-based compensation expense related to this milestone of $10.7 million.

As of September 30, 2024, 455,000 performance-based stock options were both outstanding and unvested, the total unrecognized stock-based compensation expense related to these awards was $24.9 million before the application of the forfeiture rate and the timing of recognition of this stock-based compensation expense is subject to judgment of the Company as to when the performance conditions are considered probable of being achieved.

Stock-Based Compensation Expense

The following table summarizes stock-based compensation expense recognized during the nine months ended September 30, 2024 and 2023:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2024	2023	2024	2023
	(in thousands)			
Research and development	$ 5,483	$ 6,874	$ 16,566	$ 20,143
Selling, general and administrative	8,724	20,979	28,506	39,441
Restructuring	—	838	—	838
	$ 14,207	$ 28,691	$ 45,072	$ 60,422

The following table summarizes stock-based compensation expense by award type recognized during the nine months ended September 30, 2024 and 2023:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2024	2023	2024	2023
	(in thousands)			
Stock options	$ 6,860	$ 20,251	$ 22,034	$ 39,929
Restricted stock units	7,089	8,101	22,032	19,272
Employee stock purchase plan	258	339	1,006	1,221
	$ 14,207	$ 28,691	$ 45,072	$ 60,422

For stock option awards, the fair value is estimated at the grant date using the Black-Scholes option-pricing model, taking into account the terms and conditions upon which stock options are granted. The fair value of the stock options is amortized on a straight-line basis for stock option awards to employees, non-employee directors and non-employee consultants over the requisite service period of the awards.

The weighted average grant date fair value per share of stock options granted under the Company's stock option plans during the nine months ended September 30, 2024 and 2023 was $14.55 and $30.27, respectively.

10. Net Loss Per Share

The following table shows the calculation of basic and diluted net loss per share for the nine months ended September 30, 2024 and 2023:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2024	2023	2024	2023
Basic net loss per share:				
Numerator:				
Net loss (in thousands)	$ (93,551)	$ (201,630)	$ (304,888)	$ (508,783)
Denominator:				
Weighted average common stock outstanding - basic and diluted	61,116,524	59,912,378	60,598,909	59,786,254
Net loss per share - basic and diluted	$ (1.53)	$ (3.37)	$ (5.03)	$ (8.51)

The following table summarizes potential dilutive securities outstanding at the end of each reporting period that were excluded from the calculation of diluted net loss per share because including them would have been anti-dilutive as of nine months ended September 30, 2024 and 2023:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2024	2023	2024	2023
Stock options	5,858,322	7,676,962	5,858,322	7,676,962
Restricted stock units	2,263,534	1,721,304	2,263,534	1,721,304
Employee stock purchase plan	74,059	25,649	74,059	25,649
	8,195,915	9,423,915	8,195,915	9,423,915

Stock options and restricted stock units that are outstanding and contain performance-based vesting criteria for which the performance conditions have not been met are excluded from the calculation of potential dilutive securities above.

11. Restructuring

In August 2023, the Company implemented a strategic corporate reorganization and reprioritization of its pipeline. The reorganization included a reduction of the Company's workforce by approximately 40%, designed to right-size the organization as the Company works to achieve sustained growth and support the commercialization of ZURZUVAE to treat women with PPD.

As of September 30, 2024, the Company has paid substantially all of the accrued restructuring charges. Total restructuring charges incurred to date are $32.8 million, which is the total expected amount to be incurred.

The following table summarizes activity related to the restructuring accrual during the nine months ended September 30, 2024:

	Restructuring Accrual (in thousands)
Balance as of December 31, 2023	$ 10,589
Restructuring expenses incurred	(597)
Cash paid	(9,840)
Non-cash activity	—
Balance as of September 30, 2024	$ 152

12. Subsequent Event

In October 2024, the Company committed to a plan to reorganize its business operations, including to focus investment on the ongoing launch of ZURZUVAE for the treatment of women with PPD and its pipeline development efforts. As part of the reorganization, the Company plans to implement a reduction of its workforce by approximately 33%.

The Company expects a non-recurring charge for severance and related employee costs associated with the workforce reduction of approximately $26 million to $28 million, primarily incurred in the fourth quarter of 2024. The Company expects that the workforce reduction will be substantially completed by the end of the fourth quarter of 2024.

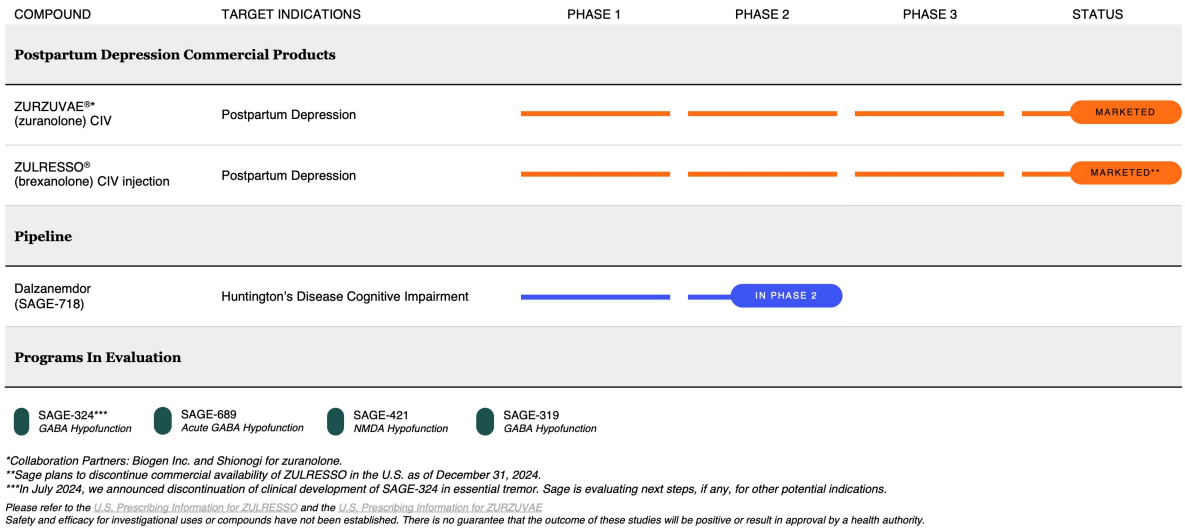
Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations

You should read the following discussion and analysis of our financial condition and results of operations together with our condensed consolidated financial statements and related notes appearing elsewhere in this Quarterly Report on Form 10-Q, or Quarterly Report, and the audited financial statements and related notes contained in our Annual Report on Form 10-K, for the year ended December 31, 2023, or Annual Report. In addition to historical information, this discussion and analysis contains forward-looking statements that involve risks, uncertainties and assumptions. We caution you that forward-looking statements are not guarantees of future performance, and that our actual results of operations, financial condition and liquidity, and the developments in our business and the industry in which we operate, may differ materially from the results discussed or projected in the forward-looking statements contained in this Quarterly Report. We discuss risks and other factors that we believe could cause or contribute to these potential differences elsewhere in this Quarterly Report, including under Part II, Item 1A, "Risk Factors" and under "Cautionary Note Regarding Forward-Looking Statements" in this Quarterly Report. In addition, even if our results of operations, financial condition and liquidity, and the developments in our business and the industry in which we operate are consistent with the forward-looking statements contained in this Quarterly Report, they may not be predictive of results or developments in future periods. We caution readers not to place undue reliance on any forward-looking statements made by us, as such statements speak only as of the date they are made. We disclaim any obligation, except as specifically required by law and the rules of the Securities and Exchange Commission, or SEC, to publicly update or revise any such statements to reflect any change in our expectations or in events, conditions or circumstances on which any such statements may be based, or that may affect the likelihood that actual results will differ from those set forth in the forward-looking statements.

Overview

We are a biopharmaceutical company with a mission to pioneer solutions to deliver life-changing brain health medicines, so every person can thrive. Alongside our commercial products for the treatment of postpartum depression, we are advancing a portfolio of internally discovered novel chemical entities with the potential to become differentiated products designed to improve brain health by targeting two critical central nervous system, or CNS, receptor systems, GABA and NMDA. The GABA receptor family, which is recognized as the major inhibitory neurotransmitter in the CNS, mediates downstream neurologic and bodily function via activation of $GABA_A$ receptors. The NMDA-type receptors of the glutamate receptor system are a major excitatory receptor system in the CNS. Dysfunction in these systems is thought to be at the core of numerous neuropsychiatric disorders.

The following table summarizes the status of our product and product candidate portfolio as of the filing date of this Quarterly Report.



Our product ZURZUVAE® (zuranolone) was approved by the U.S. Food and Drug Administration, or FDA, on August 4, 2023 for the treatment of postpartum depression, or PPD, in adults. ZURZUVAE is a neuroactive steroid that is a positive allosteric modulator of $GABA_A$ receptors, targeting both synaptic and extrasynaptic $GABA_A$ receptors, and is the first oral, once-daily, 14-day treatment specifically indicated for adults with PPD. ZURZUVAE became commercially available in the U.S. in December 2023 as a treatment option for women with PPD. We and our collaboration partner, Biogen MA Inc., or BIMA, and Biogen International GmbH, or, together with BIMA, Biogen, are jointly commercializing ZURZUVAE in the U.S. under our collaboration and license agreement, or the Biogen Collaboration Agreement, that became effective in December 2020. We and Biogen equally share in all operating profits and losses arising from sales of ZURZUVAE in the U.S., with Biogen recording such product sales.

ZURZUVAE (zuranolone) received a Schedule IV classification from the U.S. Drug Enforcement Administration, or DEA. ZURZUVAE includes a boxed warning that instructs healthcare providers to advise patients that ZURZUVAE causes driving impairment due to CNS depressant effects, and that people who take ZURZUVAE should not drive a motor vehicle or engage in other potentially hazardous activities requiring complete mental alertness until at least 12 hours after ZURZUVAE administration for the duration of the 14-day treatment course.

We jointly commercialize ZURZUVAE with Biogen in the U.S. and have the right to jointly commercialize any additional products containing zuranolone, which, along with ZURZUVAE, we refer to as Licensed 217 Products, if our ongoing and any future development efforts are successful. In addition, we have granted Biogen sole rights to develop and commercialize the Licensed 217 Products outside the U.S., other than in Japan, Taiwan and South Korea, or the Shionogi Territory, with respect to zuranolone, where we have granted such rights to Shionogi & Co., Ltd., or Shionogi. We refer to the territories outside the U.S. to which Biogen has rights under the Biogen Collaboration Agreement with respect to the Licensed 217 Products as the Biogen Territory.

On August 4, 2023, the FDA issued a complete response letter, or CRL, related to the new drug application, or NDA, for zuranolone for the treatment of major depressive disorder, or MDD. The CRL stated that the NDA did not provide substantial evidence of effectiveness to support the approval of zuranolone for the treatment of MDD and

that one or more additional clinical trials would be needed. We and Biogen have agreed not to pursue further development of zuranolone for the treatment of MDD in the U.S. This decision was based on the significant new investment and time we expect would be needed to conduct additional studies to support approval. We and Biogen plan to continue to collaborate on the commercialization of ZURZUVAE in PPD.

We also have a collaboration agreement with Shionogi for the development of zuranolone in the Shionogi Territory. Shionogi is currently developing zuranolone for the treatment of patients with MDD in Japan. In the third quarter of 2024, Shionogi reported that it submitted an NDA in Japan for zuranolone for the treatment of MDD.

We also currently commercialize ZULRESSO® (brexanolone) CIV injection for the treatment of PPD. ZULRESSO is approved in the U.S. for the treatment of PPD in individuals 15 years old and older. ZULRESSO is administered as a continuous infusion of two and a half days and may only be administered in qualified medically-supervised healthcare settings. Given the complexities and challenges associated with administration of ZULRESSO, use of the product has been limited and further reduced as a result of the availability of ZURZUVAE for the treatment of women with PPD. For that reason, we plan to discontinue commercial availability of ZULRESSO in the U.S. as of December 31, 2024. This change will allow us to further focus on commercialization of ZURZUVAE for the treatment of women with PPD. We plan to support scheduled infusions of ZULRESSO until the end of 2024.

Under the Biogen Collaboration Agreement, we and Biogen also previously agreed to jointly develop and commercialize products containing SAGE-324, which we refer to as the Licensed 324 Products. In July 2024, we and Biogen announced topline results from the KINETIC 2 Study, a Phase 2b dose-ranging clinical trial evaluating SAGE-324, a novel $GABA_A$ receptor positive allosteric modulator intended for chronic oral dosing, in the treatment of patients with essential tremor. The KINETIC 2 Study did not demonstrate a statistically significant dose-response relationship in change from baseline to Day 91 based on the primary endpoint, The Essential Tremor Rating Assessment Scale, or TETRAS, Performance Subscale, or PS, Item 4 (upper limb) total score, in participants with essential tremor. In addition, there were no statistically significant differences demonstrated for any dose of SAGE-324 versus placebo in the change from baseline to Day 91 on the TETRAS PS Item 4 or the TETRAS Activities of Daily Living Composite Score. In the study, 147 participants (129 monotherapy and 18 adjunct therapy who were on a stable dose of propranolol prior to and during the study) were randomized in approximately equal proportions to placebo and each of the three formulations of SAGE-324—15 mg, 30 mg, and 60 mg (with up-titration)—for a three-month treatment period. Overall, there was a dose-relationship observed in the incidence of CNS depressant treatment emergent adverse events, or TEAEs, and in the frequency of TEAEs leading to study drug discontinuation. The most common TEAEs reported in any treatment group were somnolence, dizziness, fatigue, feeling abnormal, headache, and balance disorder. The majority of reported TEAEs were mild or moderate in intensity. Given these results, we and Biogen decided to close the separate ongoing open-label Phase 2 clinical trial of SAGE-324 designed to evaluate the long-term safety and tolerability of SAGE-324 in patients with essential tremor and we do not plan to conduct further clinical development of SAGE-324 in essential tremor.

In September 2024, Biogen notified us of its termination of the Biogen Collaboration Agreement solely with respect to the Licensed 324 Products on a worldwide basis, effective February 17, 2025, or the SAGE-324 Termination. As a result of the SAGE-324 Termination, as of February 17, 2025, all licenses granted by us to Biogen or by Biogen to us regarding the Licensed 324 Products shall expire with respect to the Licensed 324 Products on a worldwide basis. Biogen shall grant to us an irrevocable, perpetual license for any Biogen background technology, Biogen collaboration technology or joint collaboration technology that exists as of February 17, 2025 with respect to the Licensed 324 Products on a worldwide basis, in each case in accordance with the terms of the Biogen Collaboration Agreement. We and Biogen continue to be responsible for our respective share of costs for ongoing activities related to the Licensed 324 Products in accordance with the terms of the Biogen Collaboration Agreement until February 17, 2025. We plan to continue to evaluate other potential indications, if any, for SAGE-324.

Our second area of focus for development is novel compounds that target the NMDA receptor. Our lead product candidate selected in this area is dalzanemdor, an oxysterol-based positive allosteric modulator of the NMDA receptor, which we are currently exploring in cognitive impairment associated with Huntington’s disease.

The FDA has granted dalzanemdor Fast Track designation and Orphan Drug Designation as a potential treatment for patients with Huntington's disease. In addition, the European Medicines Agency has granted Orphan Drug Designation to dalzanemdor for the potential treatment of Huntington's disease. Dalzanemdor has also been granted Innovative Licensing and Access Pathway designation from the Medicines & Healthcare products Regulatory Agency in the United Kingdom for the development of dalzanemdor for the treatment of cognitive impairment associated with Huntington's disease. Dalzanemdor is currently being studied in two ongoing clinical trials in patients with cognitive impairment associated with Huntington's disease:

- **DIMENSION Study**

  In February 2022, dosing commenced in the DIMENSION Study, a double-blind placebo-controlled Phase 2 clinical trial of dalzanemdor in patients with cognitive impairment associated with Huntington's disease. The DIMENSION Study is designed to evaluate the efficacy of once-daily dosed dalzanemdor over three months. Based on our review of data from the SURVEYOR Study announced in June 2024 and other relevant information, in July 2024, we announced that we decided to adjust the primary endpoint in the ongoing DIMENSION Study from the HD-Cognitive Assessment Battery, or HD-CAB, a composite battery comprised of six individual tests to assess various domains of cognition relevant to Huntington's disease, to the Symbol Digit Modalities Test, one of the cognitive tests included in the composite. We completed enrollment in the DIMENSION Study in June 2024 and expect to report topline data from the DIMENSION Study in late 2024.

- **PURVIEW Study**

  In December 2022, we initiated the PURVIEW Study, a Phase 3 open-label study designed to evaluate the long-term safety and tolerability of dalzanemdor in patients with Huntington's disease.

We previously evaluated dalzanemdor in certain other cognitive disorders associated with NMDA receptor dysfunction. In October 2024, we announced topline results from the LIGHTWAVE Study, a 12-week, randomized, double-blind, placebo-controlled Phase 2 clinical trial evaluating dalzanemdor for the treatment of patients with mild cognitive impairment and mild dementia due to Alzheimer's disease. The LIGHTWAVE Study did not demonstrate a statistically significant difference from baseline in participants treated with dalzanemdor versus placebo on the Wechsler Adult Intelligence Scale Fourth Edition (WAIS-IV) Coding Test score at Day 84, the primary outcome measure of the study. A total of 174 participants were enrolled and randomized in the LIGHTWAVE Study. Dalzanemdor was generally well-tolerated and no new safety signals were observed. A total of 92 participants experienced TEAEs and the majority of TEAEs were mild to moderate in severity. The analyses also did not demonstrate any meaningful differences in the dalzanemdor-treated participant group versus placebo participant group in exploratory endpoints such as the Repeatable Battery for the Assessment of Neuropsychological Status (RBANS) total score or the Montreal Cognitive Assessment (MoCA) total score. Based on these results, we do not plan any further development of dalzanemdor for the treatment of Alzheimer's disease. In addition, in April 2024, we announced that the PRECEDENT Study, a Phase 2 clinical trial evaluating dalzanemdor as a treatment for Parkinson's disease, did not meet its primary endpoint and that we do not plan any further development of dalzanemdor for the treatment of Parkinson's disease.

We have other programs at earlier stages of development with a focus on both acute and chronic brain health disorders. Our earlier stage product candidates include SAGE-689, a balanced $GABA_A$ receptor positive allosteric modulator in Phase 1 clinical development intended for intramuscular administration, and SAGE-319, an extrasynaptic $GABA_A$ receptor-preferring positive allosteric modulator in Phase 1 clinical development for its potential use as an oral therapy in treating neurodevelopmental and motor disorders. We also have earlier stage compounds focused on NMDA receptor modulation, including SAGE-421, an NMDA receptor positive allosteric modulator that we plan to study for its potential use as an oral therapy in treating cognitive impairment. We expect to continue our work on allosteric modulation of the $GABA_A$ and NMDA receptor systems in the brain while exploring new targets and pharmacologies. The $GABA_A$ and NMDA receptor systems are broadly accepted as impacting many psychiatric and neurological disorders, spanning disorders of mood, seizure, cognition, anxiety, sleep, pain, and movement, among others. We believe that we may have the opportunity to develop molecules from our internal portfolio with the goal of addressing a number of these disorders in the future, and also believe that we may have the

opportunity to use our scientific approach to explore targets beyond the $GABA_A$ and NMDA receptor systems and to develop compounds in areas of unmet need outside of brain health.

We began to generate revenue from product sales in the second quarter of 2019 in conjunction with the launch of our product ZULRESSO in June 2019. In the fourth quarter of 2020, we recorded revenue from the strategic collaboration with and stock purchase by Biogen. In addition, we record as collaboration revenue - related party our share of Biogen's sales of ZURZUVAE, which became commercially available in late 2023. We also achieved and recognized a milestone totaling $75.0 million for the first commercial sale of ZURZUVAE for the treatment of women with PPD in the U.S. in the fourth quarter of 2023, as a result of the first sale of ZURZUVAE to a distributor, and received the milestone payment in January 2024. We do not anticipate receipt of any additional milestone payments from collaborations in the remainder of 2024.

We have incurred net losses in each year since our inception, except for net income of $606.1 million for the year ended December 31, 2020, reflecting revenue recognized under the Biogen Collaboration Agreement, and we had an accumulated deficit of $2.9 billion as of September 30, 2024. Our net loss was $304.9 million for the nine months ended September 30, 2024. These losses have resulted principally from costs incurred in connection with research and development activities and selling, general and administrative costs associated with our operations and our commercial activities. We expect to incur significant expenses and operating losses for the foreseeable future.

In October 2024, we committed to a plan to reorganize our business operations intended to strengthen our balance sheet and focus investment on the ongoing launch of ZURZUVAE for the treatment of women with PPD and our pipeline development efforts. As part of the reorganization, we plan to implement a reduction of our workforce by approximately 33%. We anticipate that the implementation of the reorganization will result in a reduction of our operating expenses. Based on our current operating plan, we anticipate that our existing cash, cash equivalents and marketable securities as of September 30, 2024, anticipated funding from our ongoing collaborations and estimated revenues, excluding any potential savings resulting from our October 2024 reorganization, will support our operations into 2026. See "— Liquidity and Capital Resources".

Although we expect that our operating expenses will decrease in 2025 as compared to 2024 as a result of our October 2024 reorganization, we expect to continue to incur significant costs in connection with our ongoing activities, including if and as we:

- continue to commercialize ZURZUVAE for the treatment of women with PPD in the U.S.;
- complete ongoing clinical trials of dalzanemdor and potential further development, if the DIMENSION Study is successful;
- support our collaborations with Biogen and Shionogi;
- advance certain of our earlier-stage compounds; evaluate other indications, if any, for SAGE-324; identify new targets, and generate and test new compounds and product candidates, with a focus on indications where we believe we can make well-informed, rapid go/no-go decisions, with the goal of developing a diversified portfolio of assets with differentiated features;
- prepare and file NDAs with the FDA and conduct permitted pre-launch activities with respect to any of our product candidates that we believe have been successfully developed;
- commercialize any product candidates for which we obtain regulatory approval, including the manufacture of commercial supplies;
- continue to build, maintain, defend, leverage, and expand our intellectual property portfolio, including by utilizing the strengths of our proprietary chemistry platform and scientific know-how to expand our portfolio of new chemical entities to lessen our long-term reliance on the success of any one program and to facilitate long-term growth;
- continue to explore opportunities to establish licenses, collaborations or other agreements or alliances with other biotechnology and pharmaceutical companies, at the appropriate time, where we believe a collaboration will add significant value to our efforts, including through capabilities, infrastructure, speed

or financial contributions, or to acquire new compounds, product candidates or products if we believe such opportunities will help us achieve our goals or meet other strategic objectives; and

- evaluate the market potential and regulatory pathways for our product candidates beyond zuranolone in the European Union and other jurisdictions outside the U.S., and determine how best to move forward where and when it may make business and strategic sense.

Until such time that we can generate significant revenue on a sustained basis from product sales and/or from collaborations, if ever, we expect to finance our operations primarily through a combination of revenue, equity or debt financings and other sources of financing, including our collaborations with Biogen and Shionogi and potential future collaborations. We may not be successful in our commercialization of ZURZUVAE or any other product and may not generate meaningful revenue or revenue at the levels or on the timing necessary to support our investment and goals. We may never successfully complete development of any of our current or future product candidates, successfully file for or obtain necessary regulatory approval for such product candidates or achieve commercial viability for any resulting approved product. We may not obtain or maintain adequate patent protection or other exclusivity for our products or product candidates. Adequate additional financing may not be available to us on acceptable terms, or at all. Our inability to raise capital if and when needed would have a negative impact on our financial condition and on our ability to pursue our business strategy. Arrangements with our existing collaborators have required us to relinquish rights to certain of our technologies or product candidates, and any future collaborations, licenses, or similar arrangements may require us to relinquish additional rights. We will need to generate significant revenue to achieve profitability, and we may never do so.

Financial Operations Overview

Revenue

We began to generate revenue from product sales in the second quarter of 2019 in conjunction with the launch of our product ZULRESSO as a treatment for PPD. In addition, in late 2023, we began to generate collaboration revenue - related party from our share of Biogen's sales of ZURZUVAE in the U.S.

ZURZUVAE became commercially available in the U.S. in December 2023 as the first and only oral product approved by the FDA specifically for the treatment of adults with PPD. We and Biogen are jointly commercializing ZURZUVAE in the U.S. for the treatment of women with PPD under the Biogen Collaboration Agreement. We and Biogen equally share in all operating profits and losses arising from sales of ZURZUVAE in the U.S., with Biogen recording such product sales.

We and Biogen are utilizing a specialty pharmacy distribution model by which ZURZUVAE is shipped directly to women with PPD who are prescribed the treatment. We and Biogen have active field sales forces supported by experienced sales leadership teams and professionals in marketing, access and reimbursement, managed markets, market research, commercial operations, and sales force planning and management. We and Biogen are continuing to engage in discussions with national, regional and government payors to advocate for broad and equitable access to ZURZUVAE for women with PPD with minimal restrictions. Payor coverage for ZURZUVAE for the treatment of women with PPD is currently in place for a majority of commercially covered lives for ZURZUVAE in the treatment of women with PPD without step therapy or complex prior authorizations, including coverage from all three national Pharmacy Benefit Managers. We expect formulary discussions to continue over the course of 2024.

In the third quarter ending September 30, 2024, approximately 2,000 prescriptions for ZURZUVAE were shipped and delivered, an increase of over 40% from the prior quarter. We also maintain a patient support program, ZURZUVAE For You, which provides educational resources, help with understanding insurance coverage, and assistance navigating the prescription fulfillment process for women with PPD who are prescribed treatment. This program also includes financial assistance for women with PPD, such as the potential for copay assistance for those with commercial insurance and the potential to be provided product at no cost for other eligible patients.

Given the complexities and challenges associated with administration of ZULRESSO, use of the product has been limited and further reduced as a result of the availability of ZURZUVAE for the treatment of women with PPD. For that reason, we plan to discontinue commercial availability of ZULRESSO in the U.S. as of December 31, 2024. This change will allow us to further focus on commercialization of ZURZUVAE for the treatment of women with PPD. We plan to support scheduled ZULRESSO infusions until the end of 2024.

We will not generate revenue from other products unless and until we or any of our collaborators successfully develop, obtain regulatory approval of, and commercialize one of our current or future product candidates. If we enter into additional collaboration agreements with third parties for our product candidates, we may generate revenue from those collaborations. We expect that revenue, if any, that we may generate under our existing or future collaboration agreements will fluctuate from quarter to quarter as a result of the timing and amount of license fees, payments for clinical materials or manufacturing services, milestone payments, royalties paid to us and our share of collaboration revenues resulting from sales of any commercialized products, and other payments.

In June 2018, we entered into a strategic collaboration with Shionogi for the clinical development and commercialization of zuranolone for the treatment of MDD and other potential indications in the Shionogi Territory. Under the terms of the agreement, Shionogi is responsible for all clinical development, regulatory filings and commercialization and drug product manufacturing of zuranolone for the treatment of MDD, and potentially other indications, in the Shionogi Territory. In October 2018, we also entered into a clinical supply agreement with Shionogi under which we supply Shionogi with zuranolone material for clinical and development purposes. To date, revenue from our collaboration with Shionogi has come from an initial, upfront license fee upon execution of the collaboration agreement of $90.0 million in the year ended December 31, 2018, and from the supply of materials under the clinical supply agreement. In the third quarter of 2024, Shionogi announced that it had submitted an NDA in Japan for zuranolone for the treatment of MDD.

In November 2020, we entered into the Biogen Collaboration Agreement with Biogen for the development, manufacture and commercialization of the Licensed 217 Products and the Licensed 324 Products. In connection with the execution of the Biogen Collaboration Agreement, we also entered into a stock purchase agreement for the sale and issuance to BIMA of 6,241,473 shares of our common stock for aggregate consideration of $650.0 million. The Biogen Collaboration Agreement became effective in December 2020, and the sale of the common stock under the stock purchase agreement closed on December 31, 2020. Under the terms of the Biogen Collaboration Agreement, and as a result of the SAGE-324 Termination, we will jointly develop and, if successful, jointly commercialize the Licensed 217 Products in the U.S. and Biogen solely will develop and commercialize the Licensed 217 Products in the Biogen Territory. We and Biogen have agreed to share equally all costs for activities, as well as the profits and losses, upon FDA approval of the Licensed 217 Products, under the Biogen Collaboration Agreement solely for the U.S. Biogen is solely responsible for all costs for activities under the Biogen Collaboration Agreement in the Biogen Territory. Biogen is the principal and records sales of ZURZUVAE in the U.S. and will be the principal and record sales of Licensed 217 Products globally.

In the year ended December 31, 2020, we recorded license and milestone revenue – related party of $1.1 billion, consisting of an upfront payment of $875.0 million plus $232.5 million in excess proceeds from the equity investment under the stock purchase agreement, when measured at fair value. We also achieved a milestone under the Biogen Collaboration Agreement totaling $75.0 million and recorded license and milestone revenue - related party in the fourth quarter of 2023 for the first commercial sale of ZURZUVAE for the treatment of women with PPD in the U.S., as a result of the first sale of ZURZUVAE to a distributor, and received the milestone payment in January 2024. As a result of the SAGE-324 Termination, we will not receive any milestone payments for Licensed 324 Products under the Biogen Collaboration Agreement. For further discussion regarding the accounting for the Biogen Collaboration Agreement, refer to Note 7, *Collaboration Agreements,* in the accompanying Notes to Condensed Consolidated Financial Statements appearing in Part I, Item 1 of this Quarterly Report.

Collaborative Arrangements

We analyze our collaboration arrangements to assess whether such arrangements involve joint operating activities performed by parties that are both active participants in the activities and exposed to significant risks and

rewards dependent on the commercial success of such activities and therefore within the scope of Accounting Standards Codification, or ASC, Topic 808, *Collaborative Arrangements*, or Topic 808. This assessment is performed throughout the life of the arrangement based on changes in the responsibilities of all parties in the arrangement. For collaboration arrangements within the scope of Topic 808 that contain multiple elements, we first determine which elements of the collaboration are deemed to be within the scope of Topic 808 and which elements of the collaboration are more reflective of a vendor-customer relationship and therefore within the scope of ASC Topic 606, *Revenue from Contracts with Customers*, or Topic 606. For elements of collaboration arrangements that are accounted for pursuant to Topic 808, an appropriate recognition method is determined and applied consistently, either by analogy to authoritative accounting literature or by applying a reasonable and rational policy election. For those elements of the arrangement that are accounted for pursuant to Topic 606, we apply the five-step revenue recognition model and present the arrangement as license and milestone revenue or other collaboration revenue in the consolidated statements of operations and comprehensive loss.

For collaboration arrangements that are within the scope of Topic 808, we evaluate the income statement classification for presentation of amounts due from or owed to other participants associated with multiple activities in a collaboration arrangement based on the nature of each separate activity. Payments or reimbursements that are the result of a collaborative relationship, instead of a customer relationship, are recorded as an increase to collaboration revenue, an increase to or reduction of cost of revenues, research and development expense or selling, general and administrative expense, depending on the nature of the activity. For further discussion regarding the accounting for collaborative arrangements, refer to Note 7, *Collaboration Agreements*, in the accompanying Notes to Condensed Consolidated Financial Statements appearing in Part I, Item 1 of this Quarterly Report.

We expect that revenue, if any, that we may generate under our collaboration agreements will fluctuate from quarter to quarter as a result of the timing and amount of license fees, payments for clinical materials or manufacturing services, milestone payments, royalties paid to us and our share of collaboration revenues from sales of any commercialized products, and other payments. We expect that our collaboration revenue will increase due to the commercial launch of ZURZUVAE for the treatment of women with PPD that commenced in December 2023. For further discussion regarding our collaboration agreements with Shionogi and Biogen and the accounting for revenue from collaboration agreements, refer to Note 2, *Summary of Significant Accounting Policies* and Note 7, *Collaboration Agreements,* in the accompanying Notes to Condensed Consolidated Financial Statements appearing in Part I, Item 1 of this Quarterly Report.

Cost of Revenues

Cost of revenues includes direct and indirect costs related to the manufacturing and distribution of ZULRESSO, including third-party manufacturing costs, packaging services, freight, third-party royalties payable on our net product revenue of ZULRESSO and amortization of intangible assets associated with ZULRESSO. Cost of revenues also includes our proportionate share of ZURZUVAE manufacturing costs under the Biogen Collaboration Agreement (for further discussion regarding our collaboration agreement with Biogen and the accounting from collaboration agreements, refer to Note 2, *Summary of Significant Accounting Policies* and Note 7, *Collaboration Agreements,* in the accompanying Notes to Condensed Consolidated Financial Statements appearing in Part I, Item 1 of this Quarterly Report). Cost of revenues may also include period costs, related to certain inventory manufacturing services and inventory adjustment charges. We estimate that our cost of revenues for ZULRESSO as a percentage of net product revenue will remain in the high-single digit to low-double digits percentage range for the duration of ZULRESSO's commercial availability. We expect to utilize zero-cost inventory with respect to ZULRESSO for the duration of its commercial availability and for ZURZUVAE for an extended period of time. We expect that our overall cost of revenues will increase over time due to sales of ZURZUVAE and the recording of our proportionate share of product costs in the U.S. under the Biogen Collaboration Agreement.

Operating Expenses

Our operating expenses consist primarily of costs associated with research and development activities and selling, general and administrative activities.

Research and Development Expenses

Research and development expenses, which consist primarily of costs associated with our product research and development efforts, are expensed as incurred. Research and development expenses consist primarily of:

- personnel costs, including salaries, benefits, stock-based compensation and travel expenses, for employees engaged in research and development functions;
- expenses incurred under agreements with contract research organizations, or CROs, and sites that conduct our non-clinical studies and clinical trials;
- expenses associated with manufacturing materials for use in non-clinical studies and clinical trials and developing external manufacturing capabilities;
- costs of outside consultants engaged in research and development activities, including their fees and travel expenses;
- other expenses related to our non-clinical studies and clinical trials and expenses related to our regulatory activities;
- payments made under our third-party license agreements; and
- a portion of our information technology, facilities and other related expenses, including rent, depreciation, maintenance of facilities, insurance and supplies.

We consider the collaborative activities associated with the co-development, co-commercialization, and co-manufacturing of Licensed 217 Products and, through the SAGE-324 Termination effective date, Licensed 324 Products in the U.S. to be separate units of account within the scope of Topic 808 as we and Biogen are both active participants in the development and commercialization activities and are exposed to significant risks and rewards that are dependent on the development and commercial success of the activities in the arrangement. In periods prior to commercialization, payments to or reimbursements from Biogen related to the co-development and co-manufacturing activities are accounted for as an increase to or reduction of research and development expense. Following commercialization in the U.S., payments to or reimbursements from Biogen related to commercial co-manufacturing activities in the U.S. are accounted for as an increase to or reduction of cost of revenues. During the three and nine months ended September 30, 2024, we recorded net reimbursement of $5.4 million and $14.4 million, respectively, and during the three and nine months ended September 30, 2023, we recorded net reimbursement of $28.2 million and $67.9 million, respectively, from Biogen to us that was deducted from our research and development expenses because we incurred a greater amount of these expenses than Biogen.

Costs for certain development activities are recognized based on an evaluation of the progress to completion of specific tasks using information and data provided to us by our vendors and our clinical sites.

We have been developing our product candidates and focusing on other research and development programs, including exploratory efforts to identify new compounds, target validation for identified compounds and lead optimization for our earlier-validated programs. Our direct research and development expenses are tracked on a program-by-program basis, and consist primarily of external costs, such as fees paid to investigators, central laboratories, CROs and contract manufacturing organizations, in connection with our non-clinical studies and clinical trials; third-party license fees related to our product candidates; and fees paid to outside consultants who perform work on our programs. We do not allocate employee-related costs and other indirect costs to specific research and development programs because these costs are deployed across multiple product programs under research and development and, as such, are separately classified as unallocated or stock-based compensation in research and development expenses.

Research and development activities are central to our business. Product candidates in later stages of clinical development generally have higher development costs than those in earlier stages of clinical development, primarily due to the increased size and duration of later-stage clinical trials. Even though we have post-approval obligations for ZURZUVAE, we expect that our research and development spending will decrease as a result of focusing our

development efforts in the near term on our product candidate dalzanemdor and pausing certain earlier-stage programs.

We cannot determine with certainty the duration and costs of the current or future clinical trials of our product candidates. The duration, costs, and timing of clinical trials and development of our product candidates will depend on a variety of factors, including:

- the scope, size, rate of progress, and expense of our ongoing as well as any additional clinical trials, non-clinical studies, and other research and development activities;
- future results of ongoing, planned or future clinical trials and non-clinical studies;
- decisions by regulatory authorities related to our product candidates;
- uncertainties in clinical trial enrollment rate or design;
- significant and changing government regulation; and
- the receipt and timing of regulatory approvals, if any.

In addition, healthcare and vendor staffing shortages and disruption to the U.S. healthcare system, and/or the impact of other macroeconomic and geopolitical conditions, may also negatively impact our ongoing and planned development activities and increase our research and development costs. Concerns, precautions and restrictions related to future pandemics or other events, staffing shortages, or other changes to the macroeconomic environment may substantially slow clinical site identification and activation and enrollment in our clinical trials, may impair or delay the conduct, auditing, monitoring, or completion of our trials, may impair or impede the timeliness and completion of our data collection and analysis efforts or the integrity of our data, or may cause us to pause trials, in each case which may significantly impact our ability to meet our expected timelines or cause us to change our plans and may significantly increase our research and development costs.

A change in the outcome of any of these variables with respect to the development of a product candidate could mean a significant change in the costs and timing associated with the development of that product candidate. For example, if the FDA or another regulatory authority were to require us to conduct clinical trials beyond those that we currently anticipate will be required for the completion of clinical development of a product candidate or for regulatory approval, or if we experience significant delays in enrollment in any of our clinical trials or need to enroll additional patients, we could be required to expend significant additional financial resources and time on the completion of clinical development.

Any failure to complete any stage of the development of any potential product candidates in a timely manner could have a material adverse effect on our operations, financial position and liquidity. A discussion of some of the risks and uncertainties associated with not completing our programs on schedule, or at all, and the potential consequences of failing to do so, are set forth in Part II, Item 1A of this Quarterly Report under the heading “Risk Factors”.

Selling, General and Administrative Expenses

Selling, general and administrative expenses consist primarily of personnel costs, including those personnel costs associated with the direct sales and marketing force and our patient support program for ZURZUVAE, as well as salaries, benefits and travel expenses for our executive, finance, business, commercial, corporate development and other administrative functions, and stock-based compensation expense. Selling, general and administrative expenses also include professional fees for expenses incurred under agreements with third parties relating to the commercialization of ZURZUVAE and ZULRESSO; ongoing launch activities related to ZURZUVAE; public relations, audit, tax and legal services, including legal expenses to pursue patent protection of our intellectual property; and a portion of our information technology, facilities and other related expenses, including rent, depreciation, maintenance of facilities, insurance and supplies.

We have an active field sales force supported by experienced sales leadership teams and professionals in marketing, access and reimbursement, managed markets, market research, commercial operations, and sales force planning, and management dedicated to commercialization of ZURZUVAE. Our current commercial operations for ZULRESSO are limited to account management focused on geographies that have existing, active ZULRESSO treatment sites. We expect to continue to incur significant commercialization expenses, including payroll and related expenses, to support ongoing commercial activities associated with ZURZUVAE and support of existing ZULRESSO treatment sites through the end of 2024, when we plan to discontinue commercial availability of ZULRESSO in the U.S.

As a result of our October 2024 reorganization, we expect that our selling, general and administrative expenses will decrease in 2025 as compared to 2024. However, we expect to continue to incur significant selling, general and administrative expenses as we and our collaboration partner commercialize ZURZUVAE in the U.S. for the treatment of women with PPD. These expenses include the personnel costs associated with the direct sales and marketing force for ZURZUVAE and our patient support program for ZURZUVAE. For example, we recently completed a strategic expansion of our sales force, where we believe additional resources will help accelerate demand for ZURZUVAE in the treatment of PPD. Additionally, we expect to incur significant expenses from the progression of our development efforts for our current or future product candidates and commercialization of those products, if successfully developed and approved. We also expect to continue to incur significant expenses associated with general operations, including costs related to accounting and legal services, director and officer insurance premiums, facilities and other corporate infrastructure and office-related costs, such as information technology costs.

We consider the collaborative activities associated with the co-development, co-commercialization, and co-manufacturing of Licensed 217 Products and, through the SAGE-324 Termination effective date, Licensed 324 Products in the U.S. to be separate units of account within the scope of Topic 808 as we and Biogen are both active participants in the development and commercialization activities and are exposed to significant risks and rewards that are dependent on the development and commercial success of the activities in the arrangement. Payments to or reimbursements from Biogen related to the co-commercialization activities are accounted for as an increase to or reduction of selling, general and administrative expense. During the three and nine months ended September 30, 2024, we recorded net reimbursement from us to Biogen of $2.4 million and $5.7 million, respectively, and during the three and nine months ended September 30, 2023 we recorded net reimbursement from us to Biogen of $5.8 million and $16.3 million, respectively, that was added to our selling, general and administrative expenses because Biogen incurred a greater amount of these expenses than us.

Results of Operations

Comparison of the Three Months Ended September 30, 2024 and 2023

The following table summarizes our results of operations for the three months ended September 30, 2024 and 2023:

	Three Months Ended September 30,		Increase (Decrease)
	2024	2023	
	(in thousands)		
Product revenue, net	$ 843	$ 2,716	$ (1,873)
Collaboration revenue - related party	11,028	—	11,028
Total revenues	11,871	2,716	9,155
Operating costs and expenses:			
Cost of revenues	5,278	905	4,373
Research and development	54,576	101,919	(47,343)
Selling, general and administrative	53,219	78,142	(24,923)
Restructuring	—	33,599	(33,599)
Total operating costs and expenses	113,073	214,565	(101,492)
Loss from operations	(101,202)	(211,849)	110,647
Interest income, net	7,642	10,274	(2,632)
Other income (expense), net	9	(55)	64
Net loss	$ (93,551)	$ (201,630)	$ 108,079

Product Revenue, Net

During the three months ended September 30, 2024 and 2023, we recognized $0.8 million and $2.7 million, respectively, of net product revenue related to sales of ZULRESSO. Sales allowances and accruals consisted of chargebacks, discounts, distribution fees, rebates and patient financial assistance, and were not significant during either period. We plan to discontinue commercial availability of ZULRESSO in the U.S. as of December 31, 2024.

Collaboration Revenue - Related Party

During the three months ended September 30, 2024, we recognized $11.0 million of collaboration revenue - related party for our share of Biogen's net ZURZUVAE sales to customers in the U.S. under the Biogen Collaboration Agreement. To record our share of collaboration revenue – related party from the sales of ZURZUVAE, we utilize certain information from Biogen, including information regarding revenue from the sale of the product and associated reserves. Reported collaboration revenue - related party is 50% of the net sales Biogen reports for ZURZUVAE.

During the three months ended September 30, 2023, we recognized no collaboration revenue - related party under the Biogen Collaboration Agreement.

Other Collaboration Revenue

During the three months ended September 30, 2024 and 2023, we did not recognize any other collaboration revenue related to the supply of zuranolone active pharmaceutical ingredient, or API, under our agreement with Shionogi.

We expect that further revenue, if any, that we may generate under our collaboration agreements will fluctuate from quarter to quarter as a result of the timing and amount of our share of collaboration revenues resulting from Biogen's sales of ZURZUVAE, license fees, payments for clinical materials or manufacturing services, milestone payments, royalties paid to us, and other payments. For further discussion regarding our collaboration agreements with Shionogi and Biogen and the accounting for revenue from collaboration agreements, refer to Note 2,

Summary of Significant Accounting Policies; and Note 7, *Collaboration Agreements* in the Notes to Condensed Consolidated Financial Statements, appearing in Part I, Item 1 of this Quarterly Report.

Cost of Revenues

During the three months ended September 30, 2024 and 2023, cost of revenues was $5.3 million and $0.9 million, respectively, and is made up of direct and indirect costs related to the manufacturing and distribution of ZULRESSO including third-party manufacturing costs, packaging services, freight, third-party royalties payable on our net product revenue of ZULRESSO and amortization of intangible assets associated with ZULRESSO. During the three months ended September 30, 2024, we incurred $3.6 million of one-time charges related to the write-off of excess inventory and impairment of intangible assets related to ZULRESSO as a result of the decision to discontinue commercial availability in the U.S. as of December 31, 2024. Cost of revenues may also include period costs related to certain inventory manufacturing services and inventory adjustment charges. Cost of revenues also includes our proportionate share of ZURZUVAE manufacturing costs in the U.S. under the Biogen Collaboration Agreement (for further discussion regarding our collaboration agreement with Biogen and the accounting for collaboration agreements, refer to Note 2, *Summary of Significant Accounting Policies*; and Note 7, *Collaboration Agreements* in the Notes to Condensed Consolidated Financial Statements, appearing in Part I, Item 1 of this Quarterly Report).

Prior to receiving FDA approval for ZULRESSO in March 2019, we manufactured ZULRESSO inventory to be sold upon commercialization and recorded $8.9 million related to this inventory build-up as research and development expense. As a result, the manufacturing costs related to the ZULRESSO inventory build-up incurred before FDA approval were already expensed in a prior period and therefore a portion of such costs are excluded from the cost of revenues for the three months ended September 30, 2024 and 2023. We estimate that our cost of revenues for ZULRESSO as a percentage of net product revenue will remain in the high-single digit to low-double digits percentage range for the duration of ZULRESSO's commercial availability. We expect to utilize zero-cost inventory with respect to ZULRESSO during this period.

Research and Development Expenses

The following table summarizes our research and development expenses for the three months ended September 30, 2024 and 2023:

	Three Months Ended September 30,		Increase (Decrease)
	2024	2023	
		(in thousands)	
zuranolone (ZURZUVAE)	$ 1,118	$ 47,013	$ (45,895)
SAGE-324	7,497	8,240	(743)
dalzanemdor (SAGE-718)	10,851	14,714	(3,863)
Other research and development programs	10,861	21,428	(10,567)
Unallocated expenses	24,189	31,854	(7,665)
Stock-based compensation	5,483	6,874	(1,391)
Net reimbursement from Biogen	(5,423)	(28,204)	22,781
	$ 54,576	$ 101,919	$ (47,343)

Research and development expenses for the three months ended September 30, 2024 were $54.6 million, compared to $101.9 million for the three months ended September 30, 2023. The decrease of $47.3 million was primarily due to the following:

- a decrease of $45.9 million in expenses for development of zuranolone, primarily due to a decrease in manufacturing spend resulting from receiving marketing approval only for PPD and the completion of clinical trials in the fourth quarter of 2023;
- a decrease of $3.9 million in expenses for development of dalzanemdor, primarily due to the completion of two phase 2 clinical trials in the second quarter of 2024;

- a decrease of $10.6 million in expenses for other research and development programs, primarily due to decreased work on early-stage research and clinical programs as a result of our restructuring in the third quarter of 2023;
- a decrease of $7.7 million in unallocated expenses, primarily due to the reduction of headcount and associated overhead as a result of our restructuring in the third quarter of 2023; and
- a decrease of $22.8 million in the net reimbursement from Biogen pursuant to the Biogen Collaboration Agreement. For the three months ended September 30, 2024, the amount of net reimbursement was $0.5 million for zuranolone, $3.8 million for SAGE-324 and $1.2 million for costs that are reimbursable and included in unallocated expenses. For the three months ended September 30, 2023, the amount of net reimbursement was $22.2 million for zuranolone, $4.1 million for SAGE-324 and $1.9 million for costs that are reimbursable and included in unallocated expenses. The primary reason for the decrease in net reimbursement was the decrease in zuranolone expense for manufacturing for both us and Biogen resulting from our receipt of marketing approval only for PPD and the completion of clinical trials in the fourth quarter of 2023.

Selling, General and Administrative Expenses

The following table summarizes our selling, general and administrative expenses for the three months ended September 30, 2024 and 2023:

	Three Months Ended September 30,		Increase (Decrease)
	2024	2023	
		(in thousands)	
Personnel-related	$ 22,589	$ 24,368	$ (1,779)
Stock-based compensation	8,724	20,979	(12,255)
Professional fees	12,020	14,180	(2,160)
Other	7,467	12,780	(5,313)
Net reimbursement to Biogen	2,419	5,835	(3,416)
	$ 53,219	$ 78,142	$ (24,923)

Selling, general and administrative expenses for the three months ended September 30, 2024 were $53.2 million, compared to $78.1 million for the three months ended September 30, 2023. The decrease of $24.9 million was primarily due to the following:

- a decrease of $1.8 million in personnel-related expense, primarily due to the reduction of headcount as a result of our restructuring in the third quarter of 2023;
- a decrease of $12.3 million in stock-based compensation expense, primarily due to the recognition of $13.6 million of expense related to the achievement and probable achievement of performance-based vesting criteria during the three months ended September 30, 2023 as compared to $0.6 million of expense for the achievement of performance-based vesting criteria during the three months ended September 30, 2024;
- a decrease of $5.3 million in other expense, primarily due to lower expenses related to overhead including consultants and technology as a result of our restructuring in the third quarter of 2023; and
- a decrease of $3.4 million in the net reimbursement from us to Biogen pursuant to the Biogen Collaboration Agreement. For the three months ended September 30, 2024, the amount of net reimbursement from Biogen to us was $0.2 million for personnel-related costs and from us to Biogen was $2.6 million for external costs. For the three months ended September 30, 2023, the amount of net reimbursement from us to Biogen was $0.6 million for personnel-related costs and $5.2 million for external costs. The primary reason for the decrease in net reimbursement was a decrease in the collaboration costs incurred by Biogen related to commercialization efforts of ZURZUVAE.

2023 Restructuring

In August 2023, we implemented a strategic corporate reorganization and reprioritization of our pipeline. The reorganization included a reduction of our workforce by approximately 40%, designed to right-size the organization as we work to achieve sustained growth and support the goal of successful commercialization of ZURZUVAE for the treatment of women with PPD. As of September 30, 2024, we have recorded a total of $32.8 million of expense related to the restructuring in 2023, primarily for one-time termination benefits to the affected employees, primarily for cash payments of severance, healthcare benefits and outplacement assistance. Substantially all of the accrued restructuring charges with respect to the 2023 restructuring have been incurred and paid in cash as of September 30, 2024.

Interest Income, Net and Other Income, Net

Interest income, net, and other income, net, for the three months ended September 30, 2024 and 2023 were $7.7 million and $10.2 million, respectively. The primary reason for the decrease was the smaller investment balance in the three months ended September 30, 2024 compared to the three months ended September 30, 2023.

Comparison of the Nine Months Ended September 30, 2024 and 2023

The following table summarizes our results of operations for the nine months ended September 30, 2024 and 2023:

	Nine Months Ended September 30,		Increase (Decrease)
	2024	2023	
		(in thousands)	
Product revenue, net	$ 3,132	$ 8,469	$ (5,337)
Collaboration revenue - related party	24,661	—	24,661
Other collaboration revenue	634	14	620
Total revenues	28,427	8,483	19,944
Operating costs and expenses:			
Cost of revenues	7,955	1,339	6,616
Research and development	188,873	291,905	(103,032)
Selling, general and administrative	161,775	219,415	(57,640)
Restructuring	—	33,599	(33,599)
Total operating costs and expenses	358,603	546,258	(187,655)
Loss from operations	(330,176)	(537,775)	207,599
Interest income, net	25,277	29,276	(3,999)
Other income (expense), net	11	(284)	295
Net loss	$ (304,888)	$ (508,783)	$ 203,895

Product Revenue, Net

During the nine months ended September 30, 2024 and 2023, we recognized $3.1 million and $8.5 million, respectively, of net product revenue related to sales of ZULRESSO. Sales allowances and accruals consisted of chargebacks, discounts, distribution fees, rebates and patient financial assistance, and were not significant during either period. We plan to discontinue commercial availability of ZULRESSO in the U.S. as of December 31, 2024.

Collaboration Revenue - Related Party

During the nine months ended September 30, 2024, we recognized $24.7 million of collaboration revenue - related party for our share of Biogen's net ZURZUVAE sales to customers in the U.S. under the Biogen Collaboration Agreement. To record our share of collaboration revenue – related party from the sales of ZURZUVAE, we utilize certain information from Biogen, including information regarding revenue from the sale of the product and associated reserves. Reported collaboration revenue - related party is 50% of the net sales Biogen reports for ZURZUVAE.

During the nine months ended September 30, 2023, we recognized no collaboration revenue - related party under the Biogen Collaboration Agreement.

Other Collaboration Revenue

During the nine months ended September 30, 2024 and 2023, we recognized $0.6 million and $14 thousand, respectively, of other collaboration revenue related to the supply of zuranolone API under our agreement with Shionogi.

We expect that further revenue, if any, that we may generate under our collaboration agreements will fluctuate from quarter to quarter as a result of the timing and amount of our share of collaboration revenues resulting from Biogen's sales of ZURZUVAE, license fees, payments for clinical materials or manufacturing services, milestone payments, royalties paid to us, and other payments. For further discussion regarding our collaboration agreements with Shionogi and Biogen and the accounting for revenue from collaboration agreements, refer to Note 2, *Summary of Significant Accounting Policies,* and Note 7, *Collaboration Agreements* in the Notes to Condensed Consolidated Financial Statements, appearing in Part I, Item 1 of this Quarterly Report.

Cost of Revenues

During the nine months ended September 30, 2024 and 2023, cost of revenues was $8.0 million and $1.3 million, respectively, and is made up of direct and indirect costs related to the manufacturing and distribution of ZULRESSO including third-party manufacturing costs, packaging services, freight, third-party royalties payable on our net product revenue of ZULRESSO and amortization of intangible assets associated with ZULRESSO. During the three months ended September 30, 2024 we incurred $3.6 million of one-time charges related to the write-off of excess inventory and impairment of intangible assets related to ZULRESSO as a result of the decision to discontinue commercial availability in the U.S. as of December 31, 2024. Cost of revenues may also include period costs related to certain inventory manufacturing services and inventory adjustment charges. Cost of revenues also includes our proportionate share of ZURZUVAE manufacturing costs in the U.S. under the Biogen Collaboration Agreement (for further discussion regarding our collaboration agreement with Biogen and the accounting for collaboration agreements, refer to Note 2, *Summary of Significant Accounting Policies*; and Note 7, *Collaboration Agreements* in the Notes to Condensed Consolidated Financial Statements, appearing in Part I, Item 1 of this Quarterly Report).

Prior to receiving FDA approval for ZULRESSO in March 2019, we manufactured ZULRESSO inventory to be sold upon commercialization and recorded $8.9 million related to this inventory build-up as research and development expense. As a result, the manufacturing costs related to the ZULRESSO inventory build-up incurred before FDA approval were already expensed in a prior period and therefore a portion of such costs are excluded from the cost of revenues for the nine months ended September 30, 2024 and 2023. We estimate that our cost of revenues for ZULRESSO as a percentage of net product revenue will remain in the high-single digit to low-double digits percentage range for the duration of ZULRESSO's commercial availability. We expect to utilize zero-cost inventory with respect to ZULRESSO during this period.

Research and Development Expenses

The following table summarizes our research and development expenses for the nine months ended September 30, 2024 and 2023:

	Nine Months Ended September 30,		Increase (Decrease)
	2024	2023	
		(in thousands)	
zuranolone (ZURZUVAE)	$ 1,637	$ 100,654	$ (99,017)
SAGE-324	20,377	24,852	(4,475)
dalzanemdor (SAGE-718)	49,224	40,910	8,314
Other research and development programs	34,546	61,024	(26,478)
Unallocated expenses	80,928	112,225	(31,297)
Stock-based compensation	16,566	20,143	(3,577)
Net reimbursement from Biogen	(14,405)	(67,903)	53,498
	$ 188,873	$ 291,905	$ (103,032)

Research and development expenses for the nine months ended September 30, 2024 were $188.9 million, compared to $291.9 million for the nine months ended September 30, 2023. The decrease of $103.0 million was primarily due to the following:

- a decrease of $99.0 million in expenses for development of zuranolone, primarily due to a decrease in manufacturing spend resulting from receiving marketing approval only for PPD and the completion of clinical trials in the fourth quarter of 2023;
- a decrease of $4.5 million in expenses for development of SAGE-324, primarily due to the completion of two clinical trials which were ongoing during the nine months ended September 30, 2023;
- an increase of $8.3 million in expenses for development of dalzanemdor, primarily due to increased activities directed towards the conduct of one open-label Phase 3 safety clinical trial and three Phase 2 clinical trials;
- a decrease of $26.5 million in expenses for other research and development programs, primarily due to decreased work on early-stage research and clinical programs as a result of our restructuring in the third quarter of 2023;
- a decrease of $3.6 million in stock-based compensation expense, primarily due to the recognition of $6.8 million of expense related to the achievement and probable achievement of performance-based vesting criteria during the nine months ended September 30, 2023 as compared to $0.7 million of expense for the achievement of performance-based vesting criteria during the nine months ended September 30, 2024, partially offset by a $2.5 million increase in time-based stock grant expense that included retention grants made during the third quarter of 2023;
- a decrease of $31.3 million in unallocated expenses, primarily due to the reduction of headcount and associated overhead as a result of our restructuring in the third quarter of 2023; and
- a decrease of $53.5 million in the net reimbursement from Biogen pursuant to the Biogen Collaboration Agreement. For the nine months ended September 30, 2024, the amount of net reimbursement was $0.7 million for zuranolone, $10.2 million for SAGE-324 and $3.5 million for costs that are reimbursable and included in unallocated expenses. For the nine months ended September 30, 2023, the amount of net reimbursement was $49.0 million for zuranolone, $12.2 million for SAGE-324 and $6.7 million for costs that are reimbursable and included in unallocated expenses. The primary reason for the decrease in net reimbursement was the decrease in zuranolone expense for manufacturing for both us and Biogen resulting from our receipt of marketing approval only for PPD and the completion of clinical trials in the fourth quarter of 2023.

Selling, General and Administrative Expenses

The following table summarizes our selling, general and administrative expenses for the nine months ended September 30, 2024 and 2023:

	Nine Months Ended September 30,		Increase (Decrease)
	2024	2023	
	(in thousands)		
Personnel-related	$ 69,145	$ 86,648	$ (17,503)
Stock-based compensation	28,506	39,441	(10,935)
Professional fees	34,127	38,670	(4,543)
Other	24,253	38,311	(14,058)
Net reimbursement to Biogen	5,744	16,345	(10,601)
	$ 161,775	$ 219,415	$ (57,640)

Selling, general and administrative expenses for the nine months ended September 30, 2024 were $161.8 million, compared to $219.4 million for the nine months ended September 30, 2023. The decrease of $57.6 million was primarily due to the following:

- a decrease of $17.5 million in personnel-related expense, primarily due to the reduction of headcount as a result of our restructuring in the third quarter of 2023;
- a decrease of $10.9 million in stock-based compensation expense, primarily due to recognition of $17.9 million of expense related to the achievement and probable achievement of performance-based vesting criteria during the nine months ended September 30, 2023 as compared to $2.9 million of expense for the achievement of performance-based vesting criteria during the nine months ended September 30, 2024, partially offset by a $4.1 million increase in time-based stock grant expense that included retention grants made during the third quarter of 2023;
- a decrease of $4.5 million in professional fees expense, primarily due to lower expenses related to overhead, including consultants and commercialization efforts as a result of only receiving marketing approval of ZURZUVAE for the treatment of PPD and our restructuring in the third quarter of 2023;
- a decrease of $14.1 million in other expense, primarily due to lower expenses related to overhead including consultants and technology as a result of our restructuring in the third quarter of 2023; and
- a decrease of $10.6 million in the net reimbursement from us to Biogen pursuant to the Biogen Collaboration Agreement. For the nine months ended September 30, 2024, the amount of net reimbursement from Biogen to us was $0.1 million for personnel-related costs and from us to Biogen was $5.9 million for external costs. For the nine months ended September 30, 2023, the amount of net reimbursement from us to Biogen was $1.2 million for personnel-related costs and $15.1 million for external costs. The primary reason for the decrease in net reimbursement was a decrease in the collaboration costs incurred by Biogen related to commercialization efforts of ZURZUVAE.

2023 Restructuring

In August 2023, we implemented a strategic corporate reorganization and reprioritization of our pipeline. The reorganization included a reduction of our workforce by approximately 40%, designed to right-size the organization as we work to achieve sustained growth and support the goal of successful commercialization of ZURZUVAE to treat women with PPD. As of September 30, 2024, we have recorded a total of $32.8 million of expense related to the restructuring in 2023, primarily for one-time termination benefits to the affected employees, primarily for cash payments of severance, healthcare benefits and outplacement assistance. Substantially all of the accrued restructuring charges in connection with the 2023 restructuring have been incurred and paid in cash as of September 30, 2024.

Interest Income, Net and Other Income, Net

Interest income, net, and other income, net, for the nine months ended September 30, 2024 and 2023 were $25.3 million and $29.0 million, respectively. The primary reason for the decrease was the smaller investment balance in the nine months ended September 30, 2024 compared to the nine months ended September 30, 2023.

Liquidity and Capital Resources

We began to generate revenue from product sales in the second quarter of 2019 in conjunction with the commercial launch of our product ZULRESSO for the treatment of PPD in the U.S. We began to generate collaboration revenue from product sales of ZURZUVAE for the treatment of women with PPD in the U.S. in December 2023. We have incurred net losses in each year since our inception, except for net income of $606.1 million for the year ended December 31, 2020, reflecting revenue recognized under the Biogen Collaboration Agreement. As of September 30, 2024, we had an accumulated deficit of $2.9 billion. On December 31, 2020, we completed the sale of 6,241,473 shares of our common stock in a private placement to BIMA at a price of approximately $104.14 per share, resulting in aggregate gross proceeds of $650.0 million. Upon the first commercial sale of ZURZUVAE for the treatment of women with PPD in the U.S. in the fourth quarter of 2023, we also became entitled to receive a $75.0 million milestone payment from Biogen, which we received in January 2024. From our inception through September 30, 2024, we have received aggregate net proceeds of $2.8 billion from the sales of redeemable convertible preferred stock prior to our initial public offering, the issuance of convertible notes, and the sales of common stock in our initial public offering in July 2014, follow-on offerings and in the sale of shares of our common stock to Biogen in connection with the Biogen Collaboration Agreement, which we refer to as the Biogen Equity Purchase. We also received $1.0 billion in upfront payments under our collaborations with Biogen and Shionogi.

In September 2024, we entered into a Sales Agreement, or the ATM Sales Agreement, with TD Securities (USA) LLC, as sales agent, or TD Cowen, with respect to an "at the market offering" program pursuant to which we may offer and sell shares of our common stock having an aggregate offering price of up to $250.0 million, from time to time through TD Cowen. Upon our entry into the ATM Sales Agreement, we terminated our prior sales agreement with Cowen and Company, LLC, an affiliate of TD Cowen, dated November 7, 2023, or the Original Sales Agreement. At the time of such termination, $241.7 million out of an aggregate of $250.0 million of shares remained unsold under the Original Sales Agreement. During the three months ended September 30, 2024, we did not sell any shares under the ATM Sales Agreement or the Original Sales Agreement. As of September 30, 2024, $250.0 million of shares remained available for issuance and sale under the ATM Sales Agreement.

As of September 30, 2024, our primary sources of liquidity were our cash, cash equivalents and marketable securities, which totaled $569.2 million. We invest our cash in money market funds, U.S. government securities, corporate bonds, commercial paper, certificates of deposit and municipal securities, and our primary objectives are to preserve principal, provide liquidity and maximize income without significantly increasing risk.

The following table summarizes the primary sources and uses of cash for the nine months ended September 30, 2024 and 2023:

	Nine Months Ended September 30,	
	2024	2023
	(in thousands)	
Net cash provided by (used in):		
Operating activities	$ (200,634)	$ (421,066)
Investing activities	220,104	400,852
Financing activities	10,665	6,289
	$ 30,135	$ (13,925)

Operating Activities

During the nine months ended September 30, 2024, net cash used in operating activities primarily resulted from our net loss of $304.9 million, which was primarily attributable to our research and development activities and our selling, general and administrative expenses, partially offset by changes in our operating assets and liabilities of $64.0 million, which includes receipt of a $75.0 million milestone payment from Biogen, and $40.3 million of non-cash items.

During the nine months ended September 30, 2023, net cash used in operating activities primarily resulted from our net loss of $508.8 million, which was primarily attributable to our research and development activities and our selling, general and administrative expenses, along with changes in our operating assets and liabilities of $38.9 million, partially offset by $48.8 million of non-cash items.

Investing Activities

During the nine months ended September 30, 2024 and 2023, net cash provided by investing activities was $220.1 million and $400.9 million, respectively. During the nine months ended September 30, 2024 and 2023, we purchased marketable securities and had sales and maturities of our marketable securities as part of managing our cash and investments portfolio.

Financing Activities

During the nine months ended September 30, 2024 and 2023, net cash provided by financing activities was $10.7 million and $6.3 million, respectively. The increase was primarily due to the gross proceeds of $8.3 million from the sale of our common stock under the Original Sales Agreement during the nine months ended September 30, 2024.

Operating Capital Requirements

We anticipate that we will continue to generate losses for the foreseeable future as we commercialize ZURZUVAE, along with our collaboration partner Biogen, for the treatment of women with PPD in the U.S.; continue the development of our current and future product candidates, and seek regulatory approvals for those product candidates that are successfully developed; prepare for potential commercialization of product candidates beyond ZULRESSO and ZURZUVAE that are successfully developed and approved, including engaging in pre-launch and launch-readiness activities; begin to commercialize any such products, if approved; and continue our efforts to identify and develop new product candidates beyond our current portfolio. We also expect to incur significant costs associated with general operations. In addition, we expect to incur significant commercialization expenses for product sales, marketing and outsourced manufacturing with respect to ZURZUVAE and any other future products that are successfully developed and approved. Accordingly, we anticipate that we will need substantial additional funding in connection with our continuing operations.

Based on our current operating plan, we anticipate that our existing cash, cash equivalents and marketable securities as of September 30, 2024, anticipated funding from our ongoing collaborations and estimated revenues, excluding any potential savings resulting from our October 2024 reorganization, will support our operations into 2026. We do not anticipate receipt of any additional milestone payments from collaborations in the remainder of 2024. Although we expect an overall decrease in our operating expenses in 2025 as compared to 2024 as a result of the October 2024 reorganization, we still expect to incur significant operating expenses, including in connection with our efforts to commercialize ZURZUVAE in the U.S. for the treatment of women with PPD. We expect these costs will include the expenses associated with: ongoing co-commercialization activities; advancing our ongoing clinical trials for dalzanemdor and potential further development of dalzanemdor, if the DIMENSION Study is successful; conducting clinical trials of our other current and future product candidates; continuing certain research activities; pursuing potential business development activities; and pursuing our strategic plan.

Our current operating plan does not contemplate other activities that we may pursue or that all of our currently planned activities will proceed at the same pace, or that all of these activities will be fully initiated or completed during that time. We have based our estimates on assumptions that could change, and we may use our available capital resources sooner than we currently expect. We may also choose to change or increase our development, commercialization or other efforts or incur significant unanticipated expenses. Because of the numerous risks and uncertainties associated with the development and commercialization of any product or product candidates, we are unable to estimate the amounts of increased capital outlays and operating expenditures necessary to complete development of our current or future product candidates or to commercialize any approved product.

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

- our ability, with our collaborator Biogen, to successfully commercialize ZURZUVAE for the treatment of women with PPD in the U.S., and the timing and amount of costs associated with commercialization; the timing and amount of revenues from sales of ZURZUVAE; the level of reimbursement for ZURZUVAE both by commercial and government payors, and the nature of any potential limitations on coverage and reimbursement; and the degree of market acceptance of ZURZUVAE by healthcare providers and women with PPD;
- the impact of our October 2024 reorganization;
- the impact of our plans to discontinue commercial availability of ZULRESSO in the U.S. as of December 31, 2024;
- the initiation, progress, completion, timing, costs, and results of ongoing, planned and future non-clinical studies and clinical trials for our existing and future product candidates; the number and length of clinical trials required by regulatory authorities to support regulatory approval; and the costs of preparing, submitting and supporting regulatory filings for our product candidates, if our development efforts are successful;
- general macroeconomic and geopolitical conditions, including any capacity and resource constraints at our vendors and clinical trial sites on initiation and conduct of our clinical trials or on our supply chain;
- the ability of dalzanemdor and our other product candidates to progress through development successfully and on the timelines we expect; the outcome of discussions with regulatory authorities on regulatory pathways with respect to our product candidates, including the number and length of clinical trials required to support regulatory approval; the timing, scope and outcome of regulatory filings and reviews and approvals of such product candidates, if we are successful in our development efforts; the scope and cost of any clinical trials or other commitments required post-approval for any approved products resulting from such development efforts, if successful; and the level, timing and amount of costs associated with permitted prelaunch activities and preparing for a potential future commercial launch of any such product candidate that is successfully developed and approved;
- the impact of current and future products developed by third parties that may compete with our current or future marketed products;
- the amounts we are entitled to receive, if any, from Biogen and Shionogi under our collaborations for profit-sharing, cost-sharing, development, regulatory, and sales milestones, and royalty payments;
- the size of the markets for which our products are approved and in the indications we are pursuing or plan to study with our product candidates; the portion of the population in the approved indications for our products are actually prescribed; and the rate and degree of market acceptance, pricing, and availability and level of reimbursement for our products and product candidates, if successfully developed and approved;
- the number and characteristics of the product candidates we pursue in development and the nature and scope of our discovery and development programs;
- the costs of preparing, filing and prosecuting patent applications, maintaining and enforcing our intellectual property rights and defending intellectual property-related claims;
- the extent to which we acquire or in-license other products and technologies; and
- our ability to establish any future collaboration arrangements on favorable terms, if at all.

Until such time, if ever, as we can generate substantial product revenue and/or collaboration revenue and achieve sustained profitability, we will need additional financing. We expect to finance our additional cash needs through a combination of equity offerings, debt financings, collaborations, strategic alliances, licensing or royalty arrangements and other sources of funding. Even if we believe we have sufficient funds for our current or future

operating plans, we may seek additional capital if market conditions are favorable or in light of other strategic considerations. To the extent that we raise additional capital through the sale of equity or convertible debt securities, the ownership interest of our stockholders will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect the rights of our common stockholders. Debt financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends and may require the issuance of warrants, which could potentially dilute the ownership interest of our stockholders. If we raise additional funds through collaborations, strategic alliances, licensing or royalty arrangements or other agreements with third parties, we may have to relinquish valuable rights to our technologies, future revenue streams or research programs or to grant licenses on terms that may not be favorable to us. Raising funds may present challenges. Markets may experience volatility or become disrupted in the future for any number of reasons, including as a result of macroeconomic or geopolitical conditions, result in an economic recession, a decrease in corporate and consumer expenditures, prolonged unemployment, or other circumstances that could negatively impact general economic conditions. If we are unable to raise additional funds through equity or debt financings or other means 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 products or product candidates that we would otherwise prefer to develop and market ourselves.

Contractual Obligations and Commitments

As disclosed in Note 6, *Commitments and Contingencies*, in the Notes to Condensed Consolidated Financial Statements appearing in Part I, Item 1 of this Quarterly Report, in January 2024, we entered into a lease for new office space in a multi-tenant building at 55 Cambridge Parkway, Cambridge, Massachusetts consisting of 30,567 square feet, for which the lease term commenced on September 1, 2024. The lease has an initial term of approximately sixty-six months. The monthly base rent due under the lease shall initially be $224,158 per month for the first year following the rent commencement date and is scheduled to increase by approximately 3% per annum for each subsequent year of the lease term. The monthly base rent does not include related common area maintenance costs or real estate taxes, because those costs are variable.

The following table summarizes our contractual obligations at September 30, 2024, and the effect such obligations are expected to have on our liquidity and cash flow in future periods:

	Payments Due by Period				
	Total	Less Than 1 Year	1-3 Years	3-5 Years	More Than 5 Years
			(in thousands)		
Operating lease commitments[1]	$ 14,123	$ 442	$ 5,995	$ 6,333	$ 1,353
Total[1][2][3]	$ 14,123	$ 442	$ 5,995	$ 6,333	$ 1,353

Amounts related to contingent milestone payments are not considered contractual obligations as they are contingent on the successful achievement of certain milestones. These contingent milestones may not be achieved. We have not included any of these amounts in the table as we cannot estimate or predict when, or if, these amounts will become due. We do not include amounts related to milestones for indications that we are no longer pursuing.

(1) We lease office space in one multi-tenant building in Cambridge, Massachusetts, consisting, as of September 30, 2024, of 30,567 square feet under an operating lease, that will expire on February 28, 2030. We lease office space in a multi-tenant building in Raleigh, North Carolina, consisting of 15,525 square feet under an operating lease that will expire on November 30, 2024. The minimum lease payments in the table do not include related common area maintenance costs or real estate taxes, because those costs are variable.

(2) We have acquired exclusive and non-exclusive rights to use, research, develop and offer for sale certain products and patents under license agreements. The license agreements obligate us to make payments to the licensors for license fees, milestones, license maintenance fees and royalties. We are obligated to make future remaining milestone payments under these agreements of up to an aggregate of $23.8 million upon achieving certain milestones related to clinical development, regulatory approvals and sales. During the nine months ended September 30, 2024, we recorded no expense for milestones under these license agreements.

(3) We enter into contracts in the normal course of business with CROs for clinical trials, non-clinical research studies and testing, manufacturing and other services and products as part of general operations. These contracts generally provide for termination upon notice, and we believe that our non-cancelable obligations under these agreements are not material.

Application of Critical Accounting Policies

We have prepared our condensed consolidated financial statements in accordance with accounting principles generally accepted in the U.S. Our preparation of these condensed consolidated financial statements requires us to make estimates, assumptions, and judgments that affect the reported amounts of assets, liabilities, expenses, and related disclosures at the date of the condensed consolidated financial statements, as well as revenue and expenses recorded during the reporting periods. We evaluate our estimates and judgments on an ongoing basis. We base our estimates on historical experience and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results could therefore differ materially from these estimates under different assumptions or conditions. While our significant accounting policies are described in more detail in the notes to our consolidated financial statements to our Annual Report, we believe that our most critical accounting policies are those relating to revenue recognition, collaborative arrangements, accrued research and development expenses, and stock-based compensation.

There have been no material changes to our critical accounting policies from those described in “Management’s Discussion and Analysis of Financial Condition and Results of Operations—Critical Accounting Policies and Significant Judgments and Estimates” included in our Annual Report.

Item 3. Quantitative and Qualitative Disclosures about Market Risk

We had cash, cash equivalents and marketable securities of $569.2 million as of September 30, 2024. The primary objectives of our investment activities are to preserve principal, provide liquidity and maximize income without significantly increasing risk. Our primary exposure to market risk relates to fluctuations in interest rates, which are affected by changes in the general level of U.S. interest rates. Given the short-term nature of our cash, cash equivalents and marketable securities, we do not expect that a sudden change in market interest rates would have a material impact on our financial condition and/or results of operations. We do not own any derivative financial instruments.

We contract with vendors in foreign countries and have subsidiaries in Europe, Canada, and Bermuda. As such, we have exposure to adverse changes in exchange rates of foreign currencies associated with our foreign transactions. We believe this exposure to be immaterial. We do not hedge against this exposure to fluctuations in exchange rates.

We do not believe that our cash, cash equivalents and marketable securities have significant risk of default or illiquidity. While we believe our cash, cash equivalents and marketable securities do not contain excessive risk, we cannot provide absolute assurance that in the future our investments will not be subject to adverse changes in market value. In addition, we maintain significant amounts of cash, cash equivalents and marketable securities that are in excess of federally insured limits at one or more financial institutions.

Inflation generally affects us by increasing our cost of labor and clinical trial costs. We do not believe that inflation had a material effect on our results of operations during the nine months ended September 30, 2024 and 2023.

Item 4. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended, or the Securities Exchange Act of 1934) that are designed to ensure that information required to be disclosed in the reports that we file or submit under the Securities Exchange Act of 1934 is (1) recorded, processed, summarized, and reported within the time periods specified in the SEC's rules and forms and (2) accumulated and communicated to our management, including our President and Chief Executive Officer, who is our principal executive officer, and our Chief Financial Officer, who is also our principal financial and accounting officer, as appropriate, to allow timely decisions regarding required disclosure.

As of September 30, 2024, our management, with the participation of our principal executive officer and principal financial and accounting officer, evaluated the effectiveness of our disclosure controls and procedures. Our management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives, and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Our principal executive officer and principal financial and accounting officer have concluded, based upon the evaluation described above, that, as of September 30, 2024, our disclosure controls and procedures were effective at the reasonable assurance level.

Changes in Internal Control over Financial Reporting

There were no changes to our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Securities Exchange Act of 1934) that occurred during the period covered by this Quarterly Report that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II — OTHER INFORMATION

Item 1. Legal Proceedings

On August 28, 2024, named plaintiff Darren Korver filed a purported federal securities class action lawsuit in the Southern District of New York against us and individuals, Barry E. Greene and Kimi Iguchi, or the Securities Class Action. The complaint in the Securities Class Action alleges violations of U.S. securities laws under Sections 10(b) and 20(a) of the Securities Exchange Act of 1934 and Rule 10b-5 promulgated thereunder and seeks an as-yet unspecified amount of damages allegedly sustained by parties who purchased Sage stock between April 12, 2021 and July 23, 2024, as well as applicable attorneys' fees and costs. We deny any allegations of wrongdoing and intend to vigorously defend against the Securities Class Action.

On October 16, 2024, we received a subpoena from the Enforcement Division of the U.S. Securities and Exchange Commission, or the SEC, requesting documents and information related to our new drug application for zuranolone for the treatment of MDD, including communications with the FDA and any communications containing material nonpublic information. We are cooperating with the SEC and intend to provide information responsive to the SEC's requests.

At this time, we are unable to predict the outcome of the Securities Class Action or the SEC investigation or reasonably estimate a range of possible losses.

We may from time to time become involved in other legal proceedings relating to claims arising from our ordinary course of business, including claims related to contracts, employment arrangements, operating activities, intellectual property or other matters.

Item 1A. Risk Factors

Investing in our common stock involves a high degree of risk. You should carefully consider the risks described below, as well as the other information in this Quarterly Report on Form 10-Q, or Quarterly Report, and in our other public filings before making an investment decision. Our business, prospects, financial condition, or operating results could be harmed by any of these risks, as well as other risks not currently known to us or that we currently consider immaterial. If any such risks or uncertainties actually occur, our business, financial condition or operating results could differ materially from the plans, projections and other forward-looking statements included in this Quarterly Report, including in the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations" and elsewhere in this report and in our other public filings and public statements. The trading price of our common stock could decline due to any of these risks, and as a result, our stockholders may lose all or part of their investment.

Risks Related to Product Development, Regulatory Approval and Commercialization

Our future business prospects depend heavily on our ability, with our collaboration partner, Biogen MA Inc., and Biogen International GmbH, or together, Biogen, to successfully commercialize ZURZUVAE® (zuranolone) for the treatment of women with postpartum depression, or PPD, in the U.S. There is no assurance that our commercialization efforts in the U.S. with respect to ZURZUVAE for the treatment of women with PPD will be successful or that we will be able to generate revenues at the levels or on the timing we expect or at levels or on the timing necessary to support our goals.

Our business currently depends heavily on our ability, along with our collaboration partner, Biogen, to successfully commercialize ZURZUVAE in the U.S. as a treatment for women with PPD. ZURZUVAE was approved by the United States Food and Drug Administration, or FDA, in August 2023 as a treatment for adults with PPD and became commercially available in the U.S. in December 2023. ZURZUVAE is the first oral treatment specifically indicated for PPD. We may never be able to successfully commercialize ZURZUVAE or meet our expectations with respect to revenues or profits from sales. ZURZUVAE may not achieve and maintain broad market acceptance from healthcare professionals treating women with PPD. Healthcare professionals may decide not to use ZURZUVAE as a treatment option for their patients with PPD or may only consider prescribing ZURZUVAE for a subset of women with PPD in their practice who they consider to have particularly severe symptoms relative to other

patients suffering from this disease. ZURZUVAE may also not achieve and maintain broad market acceptance from women with PPD who may decide that they do not want to be treated with ZURZUVAE out of concerns about the safety and tolerability profile of ZURZUVAE or use while breastfeeding. ZURZUVAE includes a boxed warning that instructs healthcare providers to advise patients that ZURZUVAE causes driving impairment due to central nervous system depressant effects, and that people who take ZURZUVAE should not drive a motor vehicle or engage in other potentially hazardous activities requiring complete mental alertness until at least 12 hours after ZURZUVAE administration for the duration of the once-daily 14-day treatment course, which could decrease willingness to prescribe or use ZURZUVAE. The label also includes information about adverse events and other warnings and precautions that may cause a woman with PPD not to consider ZURZUVAE as a treatment option. ZURZUVAE may also not achieve and maintain broad market acceptance for the treatment of women with PPD if payors are not willing to provide reimbursement for the treatment or impose significant restrictions on reimbursement. Payors that currently have favorable coverage for ZURZUVAE in PPD may change their policies and may decide to limit reimbursement for ZURZUVAE, including by requiring women with PPD to try other treatments prior to ZURZUVAE, requiring a specific showing of symptom severity on measurements scales, requiring prior consultation with a psychiatrist or other specialist, or imposing other onerous prior authorization requirements, or may deny reimbursement for other reasons or in all cases. Some payors currently require that healthcare professionals attest that the women with PPD for whom they have prescribed ZURZUVAE have severe symptoms. In addition, even if a healthcare professional writes a prescription for ZURZUVAE for the treatment of a women with PPD, the prescription may not result in product being shipped to a patient and a patient taking ZURZUVAE. The healthcare professional or the patient may, for example, not take the steps necessary to obtain reimbursement or to have the prescription filled at the specialty pharmacy or may find the process of obtaining a prescription through the specialty pharmacy too slow or complicated. There is no guarantee that the infrastructure, systems, processes, policies, relationships and materials we and Biogen have built for the commercialization of ZURZUVAE for the treatment of women with PPD in the U.S. will be sufficient for us to achieve success. ZURZUVAE may also not achieve the clinical benefit we expect in women with PPD. Our commercialization of ZURZUVAE in PPD may be negatively impacted by competition from other drugs currently on the market or that may be approved in the future. The number of women with PPD, the unmet need for additional treatment options for women with PPD, and the potential market for ZURZUVAE may be significantly smaller than we expect, or we may encounter other market-related issues in the commercialization of ZURZUVAE for the treatment of women with PPD, including as a result of the price we charge. We and our collaboration partner, Biogen, may not be applying the optimal resources to the launch of ZURZUVAE or we or Biogen may not be able or willing to scale our resources at the right time or at an effective level. Even if we are successful in commercializing ZURZUVAE for the treatment of women with PPD, we expect the revenues from ZURZUVAE for the treatment of women with PPD will be significantly lower than if we had received regulatory approval in major depressive disorder, or MDD.

Our future business prospects depend heavily on our ability, alone or through our collaborations, to successfully develop, gain regulatory approval of and commercialize our current and future product candidates. We cannot be certain that we will be able to initiate planned clinical trials, to complete ongoing clinical trials or to announce results of such trials with respect to any of our product candidates, on the timelines we expect or at all, or that the results of our clinical trials or other activities under our development programs will be positive. We cannot be certain that we or our collaborators will be able to advance such product candidates into additional trials or to successfully develop, obtain regulatory approval for, or successfully commercialize any of our such product candidates, if approved.

Our future business prospects depend heavily on our ability, alone or through our collaborations, to successfully develop and gain regulatory approval of our current and future product candidates. Drug development and obtaining regulatory approval for a product involve a long, expensive and uncertain process, involving a high degree of risk.

Before obtaining regulatory approvals for the commercial sale of any product candidate, non-clinical studies and clinical trials must demonstrate that the product candidate is safe and effective for use in each target indication. We or our collaborators, as applicable, may not be able to demonstrate the efficacy and safety of any of our current product candidates or any future product candidate at each stage of clinical development or we may encounter other issues with any clinical trials or non-clinical studies required for regulatory submissions. Success in non-clinical

studies or in earlier clinical trials or interim results of clinical trials may not be repeated or observed in ongoing, future or completed studies or trials involving the same compound or other product candidates. Some or all of our or our collaborators' clinical trials may fail to meet their primary or key secondary endpoints, raise safety issues or generate mixed results.

For example, in July 2024, we announced that the KINETIC 2 Study, a Phase 2b dose-ranging clinical trial evaluating SAGE-324 for the treatment of patients with essential tremor, did not meet its primary or secondary endpoints. As a result, we and Biogen announced plans to close our ongoing open label safety study of SAGE-324 and to cease further clinical development of SAGE-324 in essential tremor. Subsequently, in September 2024, Biogen notified us of its termination of our collaboration agreement solely with respect to SAGE-324 on a worldwide basis, effective February 17, 2025. While we are evaluating next steps, if any, for other potential indications for SAGE-324, these efforts may be unsuccessful. We may choose not to further develop SAGE-324, or if we do study SAGE-324 in additional indications, such efforts may result in significant expenditure of time and expense, and we may never achieve positive results from the SAGE-324 program.

In addition, in October 2024, we announced that the LIGHTWAVE Study, a 12-week, randomized, double-blind, placebo-controlled Phase 2 clinical trial evaluating dalzanemdor for the treatment of patients with mild cognitive impairment and mild dementia due to Alzheimer's disease, did not meet its primary endpoint and analyses did not demonstrate any meaningful differences versus placebo in the other exploratory endpoints. Previously, in April 2024, we announced that the PRECEDENT Study, a Phase 2 clinical trial evaluating dalzanemdor as a treatment for cognitive impairment due to Parkinson's disease, did not meet its primary endpoint and analyses did not suggest any meaningful differences versus placebo in the other exploratory endpoints. We are continuing to advance our clinical program for dalzanemdor with the DIMENSION Study, a placebo-controlled Phase 2 clinical trial, and the PURVIEW Study, an open-labeled safety study, in patients with cognitive impairment associated with Huntington's disease, but these trials may similarly be unsuccessful. Any potential directionally positive signals in certain measures of the treatment phase of the SURVEYOR Study of patients with cognitive impairment due to Huntington's disease announced in June 2024 may not mean the results of the DIMENSION Study or the PURVIEW Study will be positive or otherwise be meaningful to the dalzanemdor development program. In addition, although we adjusted the primary endpoint for the DIMENSION Study, adjusting the primary endpoint does not change the probability of success for this study. The results of the DIMENSION Study or the PURVIEW Study may not be positive and may not support further development.

We may find that studying alternate formulations of our product candidates or doses that achieve higher or lower patient exposure may result in unexpected adverse events or raise other safety issues or may otherwise generate negative results. For example, in the KINETIC 2 Study, we evaluated multiple doses, including the same maximum dose of SAGE-324 that we evaluated in prior studies. SAGE-324 did not demonstrate a statistically significant dose-response relationship on the primary endpoint in participants with essential tremor. A dose-relationship was observed, however, in the incidence of CNS depressant treatment emergent adverse events, or TEAEs, and in the frequency of TEAEs leading to study drug discontinuation in the KINETIC 2 Study. We might decide to evaluate different doses, formulations, and durations of dosing for any of our product candidates with other studies or programs in the future. Changes in formulation or the need to refine or scale-up the manufacturing process as we do for any of our product candidates could also delay development or require us to conduct additional clinical trials or non-clinical studies or conduct post-approval analyses or could lead to different results than achieved with the earlier formulation or processes.

The results of clinical trials or non-clinical studies of our product candidates at any stage may not support further development or may not be sufficient to file for and obtain regulatory approval on the timelines we expect or at all. The FDA or other regulatory authorities may not agree with our interpretation of the results of clinical trials or non-clinical studies. Other decisions or actions of the FDA or other regulatory authorities may affect our plans, progress, results, timing or next steps, including whether to proceed with further development. For example, we received a complete response letter, or CRL, related to the new drug application, or NDA, for zuranolone for the treatment of MDD. The FDA has taken the position that one or more additional clinical trials of zuranolone are required to support approval in MDD. We and Biogen have agreed not to pursue further development or regulatory engagement for zuranolone for the treatment of MDD in the U.S.

We or our collaborators may not be able to initiate or complete our clinical trials or announce results from our clinical trials on the timelines we expect. We or our collaborators may experience slower than expected activation of sites or enrollment and randomization of patients in our clinical trials, particularly in clinical trials where an in-patient stay or frequent site visits are required, the patient population is small or otherwise difficult to enroll, enrollment criteria are more selective than historically used, there are existing therapies, where other companies are running large clinical trials, or where relevant clinical sites or our vendors are experiencing healthcare staffing shortages or significant turnover. There is also the potential for slower than expected clinical site initiation, problems with the conduct of a study at one or more sites, delays or problems in analyzing data, the potential need for additional analysis or data or the need to enroll additional patients, the negative impact of feedback from the FDA or other regulatory authorities on trial design or analysis of results, the need to make protocol amendments or other unexpected issues, such as adverse events, in any of our clinical trials. These types of delays or issues could lead to delays in the completion of a trial and announcement of results or impact the results of our trials.

Our ongoing and planned development activities may be negatively impacted by a number of factors. Widespread healthcare and vendor staffing shortages and increased competition for patients and clinical sites may make it difficult to enroll patients in our clinical trials and/or identify and activate participating clinical sites for our trials, may cause other delays at clinical trial sites and/or vendors, and may increase the rates of patients withdrawing from our clinical trials following enrollment. Some clinical sites may decline or delay participation in our trials due to capacity and resource constraints. These factors may substantially slow clinical site identification and activation and enrollment in our clinical trials, or cause us to pause trials, which may, in each case, significantly impact our ability to meet our expected timelines, budgets, or other plans.

We or our clinical sites may in the future implement measures to help minimize the number of visits a clinical trial participant is required to make to a site in response to certain events, including by limiting or modifying clinical trial procedures and visits for data collection, or clinical sites may impose other restrictions or limitations on key clinical trial activities such as restrictions related to monitoring of the sites by clinical research organizations. Limitations or modifications to study procedures, study visits or data collection, restrictions on key clinical trial activities such as monitoring or auditing, or other restrictions that may affect data analysis activities may require additional assessment and evaluation from institutional review boards; negatively impact the integrity or completeness of our trial data, the powering of a trial, the integrity or relevance of clinical study endpoints; or impact the timing of availability of results.

The drug development process can take many years and may include post-marketing studies and surveillance, which will require the expenditure of substantial resources. Of the large number of drugs in development in the U.S., only a small percentage will successfully complete the FDA regulatory approval process and will be commercialized. Accordingly, even if we have the requisite financial resources, when needed, to continue to fund our development efforts, we cannot assure you that any of our current or future product candidates will be successfully developed or commercialized either in the U.S. or in any country outside the U.S. Even if we or our collaborators conduct the trials required by or discussed with the FDA, the FDA may ultimately decide that the design, number and type of trials, number of patients studied or results, even if positive, are not sufficient to file for or gain regulatory approval of any of our product candidates in the indications we study, or do not support the safety or efficacy or our intended profile for the product, as was the case with the CRL that the FDA issued related to the NDA for zuranolone for the treatment of MDD.

We may never be able to generate meaningful revenues from sales of our products, if successfully developed and approved, at levels or on timing necessary to support our investment and goals, and we may ultimately decide to discontinue commercial availability of products that we are unable to successfully commercialize or as a result of market changes.

Even if we or one of our collaborators gains approval of any of our current or future product candidates, we and our collaborators may never be able to successfully commercialize such new product in the approved indications or meet our expectations with respect to timing and revenues or profits from sales of such product. The lack of commercial success at levels or on timing necessary to support our investment and goals, or overall changes to the market, may lead us to discontinue products even if successfully developed and approved.

For example, we plan to discontinue commercial availability of our product ZULRESSO® (brexanolone) CIV injection in the U.S. as of December 31, 2024. ZULRESSO is approved in the U.S. as a treatment for PPD in individuals 15 years old and older. ZULRESSO was first made commercially available in the U.S. in June 2019. Since launch, our revenues from sales of ZULRESSO have been negatively impacted by significant barriers arising from the complex requirements for treatment and, more recently, by the introduction of ZURZUVAE as a treatment for women with PPD. ZULRESSO is administered as a continuous infusion given over two and a half days. Because of the risk of serious harm resulting from excessive sedation or sudden loss of consciousness during the ZULRESSO infusion, ZULRESSO is approved for administration only in a medically-supervised healthcare setting that has been certified under a Risk Evaluation and Mitigation Strategy, or REMS, program and meets the other requirements of the REMS program, including requirements related to monitoring of the patient during the infusion. The actions that have been required for a healthcare setting to be ready and willing to treat women with PPD are complex and time-consuming. These actions have included becoming REMS-certified; achieving formulary approvals; establishing protocols for administering ZULRESSO; and securing satisfactory reimbursement. Sites have often had to negotiate reimbursement on a payor-by-payor basis under commercial coverage. These requirements created significant barriers to treatment with ZULRESSO for women with PPD.

We also encountered other issues and challenges in commercializing ZULRESSO and generating revenues, including:

- Some women with PPD who need treatment have found it too onerous to undergo an infusion or to be treated at a certified healthcare setting overnight for the length of stay required for treatment, or to be enrolled in the registry that is part of the REMS process or have been concerned about the risk of excessive sedation and sudden loss of consciousness.
- More healthcare providers than we expected have been unwilling to accept ZULRESSO as a treatment for women with PPD; we believe this unwillingness has been due primarily to the product profile and reimbursement challenges associated with ZULRESSO.
- We compete with lower cost antidepressants.
- In light of the commercial availability of ZURZUVAE as an oral treatment option for women with PPD, healthcare settings are less likely to complete the complex and time-consuming actions required to become infusion-ready, and many of those healthcare settings that have in the past been active treatment sites have not been as willing to remain infusion-ready.
- Given the mode of administration, the nature of the REMS and the current limitation on the administration of ZULRESSO to a medically-supervised healthcare setting certified under the REMS, use of ZULRESSO in the U.S. has been focused primarily on women with more severe symptoms of PPD.
- We have encountered coverage and reimbursement challenges, including restrictions related to the severity of PPD cases for which ZULRESSO will be reimbursed, requirements that other treatments be used prior to ZULRESSO, or other limitations in the scope, breadth, availability or amount of reimbursement covering ZULRESSO or the infusion.
- A number of healthcare settings that have been willing to administer ZULRESSO to women with PPD who have commercial insurance have not been willing to treat Medicaid patients, which has adversely affected our ability to generate revenue from ZULRESSO.

If we may face issues or challenges with current or future products that impact market acceptance, convenience, availability, reimbursement or other aspects of commercialization, as applicable, these issues could impair our ability to generate revenues or could impair our ability to meet our expectations with respect to the amount or timing of revenues for our products, even if successfully developed and approved. If we decide to discontinue commercial availability for any of our products as a result of such challenges or changes to the market, as we are planning with ZULRESSO, the withdrawal of the product from the marketplace may raise potential additional risks and uncertainties, including from contract terminations, the withdrawal of the NDA with regulatory authorities, or other actions, which we may not be able to predict. Any issues or hurdles related to our commercialization efforts may

materially adversely affect our business, results of operations, financial condition and prospects and could lead us to make significant further changes to the scope and nature of our efforts.

Our current or future products and product candidates may cause undesirable side effects that limit their commercial profile; delay or prevent further development or regulatory approval; cause regulatory authorities to require labeling statements, such as boxed warnings or a REMS; or result in other negative consequences.

We may observe undesirable side effects or other potential safety issues in nonclinical studies, in clinical trials at any stage of development of our product candidates, as part of an expanded access program, if initiated for any of our products or product candidates, in commercial use or in post-approval studies of any approved product. Clinical trials by their nature utilize a sample of the potential patient population. With a limited number of patients and limited duration of exposure, certain side effects of ZURZUVAE, ZULRESSO, any other current or future product candidates, or any future products, if successfully developed and approved, may only be uncovered, or the frequency or severity identified, with a larger number of patients exposed to the product. Those side effects could be serious or life-threatening. If we or others identify undesirable side effects, or increased severity or frequency of know side effects, caused by ZURZUVAE, ZULRESSO, any current product if approved in additional indication(s), any other existing or future product candidate, or any future approved product:

- regulatory authorities may withdraw, withhold or limit their approval of such products;
- the FDA or regulatory authorities outside the U.S. may impose a clinical hold or partial clinical hold prior to the initiation of development or during development of our product candidates which could cause us or our collaborators to have to stop, delay or restrict further development; or we or our collaborators may, even without a clinical hold, decide to interrupt, delay or halt existing non-clinical studies and clinical trials or stop development;
- we may have difficulty enrolling patients in our clinical trials and completing such trials on the timelines we expect or at all, or we may have to conduct additional non-clinical studies or clinical trials as part of a development program;
- if an NDA for any of our product candidates is reviewed by an advisory committee of the FDA, the advisory committee may recommend against approval of the application or may recommend that the FDA require, as a condition of approval, additional non-clinical studies or clinical trials, limitations on approved labeling or distribution and use restrictions, and the FDA may ultimately agree with the recommendations of the advisory committee;
- we or our collaborators may not be able ultimately to demonstrate, to the satisfaction of the FDA or other regulatory authorities, that our product candidates are safe and that the benefits outweigh the safety risks, and the FDA or applicable foreign regulatory authorities may not approve the product candidate;
- regulatory authorities may require the addition of labeling statements, such as a boxed warning or additions to an existing boxed warning, or a contraindication, including as a result of inclusion in a class of drugs for a particular disease, or may require a REMS, or modifications to an existing REMS;
- we or our collaborators may be required to change the way such products are distributed or administered, conduct post-approval studies or change the labeling of the products;
- we or our collaborators may be subject to regulatory investigations and government enforcement actions;
- we or our collaborators may decide to remove such products from the marketplace;
- we or our collaborators could be sued and held liable for injury caused to individuals exposed to or taking our products or product candidates; and
- our reputation may suffer.

We believe that any of these events could prevent us from achieving or maintaining market acceptance of the affected products, could substantially increase the risks to our business, including the risks and costs of developing our product candidates or commercializing our products, and could significantly adversely impact our ability and that

of our collaborators to successfully develop, gain regulatory approval for, and commercialize our current product candidates or future products and generate revenues at the levels we expect, or at all.

Obtaining regulatory approval to market any of our product candidates is a complex, lengthy, expensive and uncertain process, and the FDA and regulatory authorities outside of the U.S. may delay, limit or deny approval of any of our product candidates for many reasons. Any setback or delay in obtaining regulatory approval for any of our product candidates or in our ability to commence or continue marketing of our products, if approved, may have a material adverse effect on our business and prospects.

We are not permitted to market any of our product candidates in the U.S. until we or our collaborators receive approval of an NDA from the FDA or in any foreign countries until we or our collaborators receive the requisite marketing approval from such countries. Obtaining approval of an NDA in the U.S. or marketing approval in any country outside the U.S. is a complex, lengthy, expensive and uncertain process. For example, on August 4, 2023, the FDA issued a CRL related to the NDA for zuranolone for the treatment of MDD. The CRL stated that the NDA did not provide substantial evidence of effectiveness to support the approval of zuranolone for the treatment of MDD and that one or more additional clinical trials will be needed. The FDA and regulatory authorities outside the U.S. may delay, limit or deny approval of any of our product candidates for many reasons, including, among others:

- we or our collaborators may not be able to demonstrate, to the satisfaction of the FDA or other regulatory authorities, that our product candidates are safe and effective in any indication, as was the case with respect to the NDA for zuranolone for the treatment of MDD, and that the benefits outweigh the safety risks;
- the results of our non-clinical studies and clinical trials may be negative, or may not meet the level of statistical or clinical significance or other criteria required by the FDA or regulatory authorities outside the U.S. for marketing approval;
- the FDA or regulatory authorities outside the U.S. may impose a clinical hold or partial clinical hold prior to the initiation of development or during development of our product candidates, which could cause us to have to stop, delay or restrict further development;
- the FDA or regulatory authorities outside the U.S. may disagree with our interpretation of data from our non-clinical studies and clinical trials, or may not accept data generated at one or more of our sites conducting non-clinical studies or clinical trials which could cause the study or trial to fail;
- the FDA or regulatory authorities outside the U.S. may determine that the number, design, size, conduct, implementation or results of our non-clinical studies or clinical trials are inadequate for regulatory approval or that changes in dosing or drug formulation used in our non-clinical studies or clinical trials require additional trials or studies, even if the regulatory authorities have previously reviewed and commented on the design and details of our plans as was the case with respect to the NDA for zuranolone for the treatment of MDD;
- the FDA or regulatory or other government authorities outside the U.S. may require that we or our collaborators conduct additional non-clinical studies and clinical trials prior to approval or post-approval;
- the FDA or regulatory authorities outside the U.S. may not approve the formulation, labeling or specifications of any of our product candidates;
- if an NDA for any of our product candidates is reviewed by an advisory committee of the FDA, the advisory committee may recommend against approval of the application or may recommend that the FDA require, as a condition of approval, additional non-clinical studies or clinical trials, limitations on approved labeling or distribution and use restrictions, and the FDA may ultimately agree with the recommendations of the advisory committee;
- the FDA or regulatory authorities outside the U.S. may approve a product candidate for which we or our collaborators are seeking regulatory approval for a more limited patient population than expected or with substantial use restrictions;
- the FDA may require a REMS as a condition of approval or post-approval for our product candidates, as was the case with ZULRESSO, or may modify an existing REMS or may impose other limitations or restrictions, like a boxed warning, as is the case with ZURZUVAE;

- the FDA or regulatory authorities outside the U.S. may determine that the manufacturing processes or facilities of third-party contract manufacturers with which we contract do not conform to applicable requirements, including cGMPs; or
- the FDA or regulatory authorities outside the U.S. may change their approval policies or adopt new regulations.

Any of these factors, many of which are beyond our control, could jeopardize or delay our or our collaborators' ability to obtain regulatory approval for product candidates and successfully market approved products. Even if we or our collaborators receive marketing approval for any of our product candidates, regulatory or other governmental authorities may still impose significant restrictions, including restrictions on the indicated use or marketing, or may impose ongoing requirements for potentially costly post-approval studies. For example, the FDA has imposed post-approval obligations in connection with approval of ZULRESSO and ZURZUVAE. For ZURZUVAE, the FDA is requiring two post-marketing studies: a pharmacokinetic and safety study in adolescent females who have completed puberty and an embryofetal toxicity study in a second species. We may not be able to fulfill these obligations in accordance with the FDA's timelines, or at all. The FDA recommended scheduling with respect to both ZURZUVAE (zuranolone) and ZULRESSO (brexanolone), and both received a Schedule IV classification from the DEA. The FDA may recommend scheduling with respect to any of our current or future product candidates, if approved. In such event, as was the case with ZURZUVAE and ZULRESSO, prior to a product launch, the DEA will need to determine the controlled substance schedule of the product, taking into account the recommendation of the FDA. The timing of the scheduling process would delay our ability to market any product candidate that is successfully developed and approved. In addition, the scheduling designation itself could impact the market opportunity for any product candidate that is successfully developed and approved.

We may seek priority review of future NDA submissions with the FDA, if our development efforts with respect to any of our product candidates are successful, but the FDA may not grant such priority review. Even if the FDA grants priority review for an NDA, the FDA may not meet the applicable review timelines or may elect to extend the timeframe for their review. Delays, resource constraints, and other disruptions at the FDA and other authorities may slow the time necessary for new drugs to be reviewed and/or approved by necessary government authorities, which would adversely affect our business. For example, the U.S. government has shut down several times in recent history and certain regulatory authorities, including the FDA, have had to furlough critical employees and stop critical activities. If a prolonged government shutdown occurs in the future, it could significantly impact the ability of the FDA to timely review and process our regulatory submissions, which could have a material adverse effect on our business.

Fast Track and Breakthrough Therapy designations from the FDA, PRIority Medicines, or PRIME, designation from the European Medicines Agency, or EMA, Innovative Licensing and Access Pathway designation from the Medicines & Healthcare products Regulatory Agency in the United Kingdom, or similar designations in other countries or regions do not necessarily lead to a faster development pathway or regulatory review process, and do not increase the likelihood of regulatory approval. For example, on August 4, 2023, the FDA issued a CRL related to the NDA for zuranolone for the treatment of MDD after previously granting both Fast Track and Breakthrough Therapy designations to zuranolone for MDD. The FDA may withdraw Fast Track designation or Breakthrough Therapy designation, and the EMA may withdraw PRIME designation, if the relevant agency believes that the designation is no longer supported by data from our clinical development programs. For example, in November 2023, the FDA rescinded Breakthrough Therapy Designation for zuranolone for the treatment of MDD.

The number of people with the diseases and disorders for which our products are indicated and for which our product candidates are targeted may be smaller than we expect or our other assumptions with respect to the potential markets for our products and product candidates may not be correct and the markets may be significantly smaller than we expect.

There is no precise method of establishing in any geography over any period of time the actual number of patients with the diseases and disorders for which our products are indicated and our product candidates are targeted. With respect to any indications for which we have developed, are developing, or plan to develop products and

product candidates, we estimate the prevalence of the disease or disorder, and our estimates as to prevalence, including the assumptions we apply in determining our estimate, may not be accurate. In each case, there is a range of estimates in the published literature and in marketing studies, which include estimates within the range that are lower than our estimates. For example, our estimates of the prevalence of PPD are higher than estimates reported in some of the published literature and results obtained from certain studies analyzing claims databases and include women who have symptoms of PPD but have not been formally diagnosed with PPD or may not meet all of the diagnostic criteria. We believe these differences may be the result of variations in analytical methodologies and possibly under-diagnosis of PPD as a result of inadequate screening and under-reporting and some patients being reluctant to seek treatment in clinical practice. The actual number of women with PPD or any other indication for which we are pursuing or may elect to pursue development of our product candidates may, however, be significantly lower than we believe. Even if our prevalence estimates are correct, any approved product that we develop may only be indicated for or prescribed to and used by a subset of patients with the relevant disease or disorder. Our assumptions and estimates about the potential markets for ZURZUVAE for the treatment of women with PPD and for our other current and future product candidates in the indications we are or may pursue may not be accurate. In the event the number of patients with the diseases and disorders we are studying is significantly lower than we expect, we or our collaborators may have difficulties in enrolling patients in our clinical trials which may delay or prevent development of our product candidates. If our prevalence estimates with respect to any indication or our other market assumptions are not accurate, the markets for any approved product for these indications may be smaller than we anticipate, which could limit our revenues and our ability to achieve profitability or to meet our expectations with respect to the level and timing of revenues or profits.

Positive results from non-clinical studies and clinical trials of our product candidates are not necessarily predictive of the results of later non-clinical studies and clinical trials of our product candidates in the same indications or other indications. Interim results from non-clinical studies and clinical trials may not be predictive of results of such non-clinical studies or clinical trials once completed. If we cannot replicate the positive results from our earlier non-clinical studies and clinical trials of our product candidates in our later non-clinical studies and clinical trials in the same indications or other indications, or we cannot replicate our interim results in our completed non-clinical studies and clinical trials, we may be unable to successfully develop, obtain regulatory approval for and commercialize our product candidates.

Positive results from non-clinical studies and clinical trials of our product candidates may not necessarily be predictive of the results we or our collaborators may obtain from subsequent non-clinical studies or clinical trials using the same product candidate or other product candidates. Similarly, interim results from non-clinical studies and clinical trials may not be predictive of results of a non-clinical study or clinical trial once completed.

We or our collaborators may find that our ongoing or any future clinical trials of dalzanemdor or any of our other current or future product candidates may fail to meet their primary endpoints. For example, in October 2024, we announced that the LIGHTWAVE Study evaluating dalzanemdor for the treatment of mild cognitive impairment and mild dementia due to Alzheimer's disease did not meet its primary endpoint and in April 2024, we announced that the PRECEDENT Study evaluating dalzanemdor for the treatment of cognitive impairment in Parkinson's disease did not meet its primary endpoint. Our ongoing placebo-controlled Phase 2 DIMENSION Study and open-label safety study of dalzanemdor for the treatment of cognitive impairment associated with Huntington's disease may also fail to meet their primary endpoints or may generate results that do not support further development. In addition, in July 2024, we announced that the KINETIC 2 Study evaluating SAGE-324 for the treatment of essential tremor did not meet its primary endpoint, and that we were discontinuing development of SAGE-324 in essential tremor. Subsequently, in September 2024, Biogen notified us of its termination of our collaboration agreement solely with respect to SAGE-324 on a worldwide basis, effective February 17, 2025. We are evaluating next steps, if any, for other potential indications of SAGE-324. We may choose not to further develop SAGE-324 in any indication.

We or our collaborators may also observe safety issues in clinical trials or non-clinical studies of our product candidates that we or they did not observe or appreciate in earlier stage clinical studies or non-clinical studies, or a different rate or severity of events, including as a result of an increase in dosing or in frequency or duration of dosing, studying a different patient population or different indication than previously studied, or administering a product candidate with a concomitant medication. For example, in the KINETIC 2 Study, for which we reported negative results in July 2024, we observed a dose-relationship in the incidence of CNS depressant TEAEs and in the

frequency of TEAEs leading to study drug discontinuation in the study. Any of our studies may result in unexpected adverse events or raise other safety issues or may otherwise generate negative results.

The results from non-clinical animal models may not be replicated in clinical trials. Many product candidates, including many targeting central nervous system disorders, with promising non-clinical profiles have failed to demonstrate similar safety, non-toxicity and efficacy in humans.

Many companies in the pharmaceutical and biotechnology industries have suffered significant setbacks in later-stage clinical trials after achieving positive results in earlier-stage development, and we cannot be certain that we will not face similar setbacks. Many drugs have failed to replicate efficacy and safety results in larger, longer or more complex later stage trials. Moreover, non-clinical and clinical data are often susceptible to varying interpretations and analyses, and many companies that believed their product candidates performed satisfactorily in non-clinical studies and clinical trials nonetheless failed to obtain FDA approval. If we or our collaborators fail to produce positive results in our ongoing and planned non-clinical studies or clinical trials of any of our product candidates, the development timeline and regulatory approval and commercialization prospects for our product candidates, and, correspondingly, our business and financial prospects, would be materially adversely affected.

Failures or delays by us or our collaborators in the commencement, enrollment or completion of our ongoing and planned clinical trials of our current and future product candidates could cause us not to meet our expected timelines or result in increased costs to us, and could delay, prevent or limit our ability to gain regulatory approval of any such product candidate and to generate revenue from resulting products, if any.

Successful completion of clinical trials at each applicable stage of development is a prerequisite to submitting an NDA to the FDA or equivalent filings outside the U.S. and, consequently, the ultimate approval and commercial marketing of any of our product candidates for the indications in which we develop them. We do not know whether any of our ongoing clinical trials will be completed, and results announced, or whether future trials will begin, as planned or expected, if at all, as the commencement, enrollment and completion of clinical trials and announcement of results can be delayed or prevented for a number of reasons, including, among others:

- denial by the FDA or other regulatory authority of permission to proceed with our planned clinical trials or any other clinical trials we may initiate, or placement of one or more clinical trials on full or partial clinical hold;
- delay or inability to satisfy the requirements of the FDA to commence clinical trials, including chemistry, manufacturing and control, or CMC, requirements, or to file or receive approvals of additional investigational new drug applications, or INDs, that may be required;
- delay or inability to satisfy the requirements for clinical trials conducted in the European Union, or EU, if applicable, pursuant to Regulation (EU) No 536/2014, or the EU Clinical Trials Regulation;
- negative or inconclusive results from our ongoing non-clinical studies or clinical trials;
- challenges in identifying, recruiting, enrolling and retaining patients to participate in clinical trials;
- challenges in qualifying and activating clinical trial sites, including due to capacity and resource constraints and attrition at sites, and potential delays at clinical trial sites;
- general political and economic conditions, including as a result of future pandemics or other global health crises or bank failures;
- delays in reaching or failing to reach agreement on acceptable terms with prospective contract research organizations, or CROs, and clinical trial sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and trial sites, or failures or problems by CROs or clinical trial sites in executing their activities under such agreements;
- inadequate quantity or quality of supplies of a product candidate or other materials necessary to conduct clinical trials;

- difficulties obtaining Institutional Review Board, or IRB, approval, and equivalent approval for sites outside the U.S., to conduct a clinical trial at a prospective site or sites;
- delays or problems in analyzing data, or the need for additional analysis or data or the need to enroll additional patients;
- the occurrence of serious adverse events or unexpected drug-related side effects experienced by patients in a clinical trial or unexpected results in ongoing non-clinical studies;
- delays in validating endpoints utilized in a clinical trial or the impact of changes in trial design or analysis plans;
- the FDA or applicable regulatory authorities outside the U.S. disagreeing with our clinical trial design and our interpretation of data from clinical trials, or changing the requirements for approval even after the regulatory authority has reviewed and commented on the design for our clinical trials or delays caused by the need or desire for engagement with the FDA or applicable regulatory authorities; and
- reports from non-clinical or clinical testing of other therapies that raise safety or efficacy concerns.

In addition, a clinical trial may be suspended or terminated by us, the FDA or other regulatory authorities, the IRB or ethics committee, or EC, at the sites where the IRBs or ECs are overseeing a clinical trial, or recommended for termination or suspension by a data and safety monitoring board overseeing the clinical trial at issue or other regulatory authorities due to a number of factors, including, among others:

- failure to conduct the clinical trial in accordance with regulatory requirements or our clinical protocols;
- inspection of the clinical trial operations or trial sites by the FDA or other regulatory authorities that reveals deficiencies or violations that require us to undertake corrective action, including the imposition of a partial or full clinical hold;
- unforeseen safety issues, including any that could be identified in our ongoing non-clinical studies, or adverse side effects or lack of effectiveness identified in ongoing clinical trials;
- changes in government regulations or administrative actions; and
- problems with clinical supply materials.

Additionally, changes in regulatory requirements, guidance or unanticipated events during our non-clinical studies and clinical trials or other reasons may cause us or our collaborators to amend non-clinical studies and clinical trial protocols or the applicable regulatory authorities may impose additional non-clinical studies and clinical trial requirements. Amendments or changes to clinical trial protocols would require resubmission to the FDA and IRBs for review and approval, which may adversely impact the cost, timing or successful completion of clinical trials. If we or our collaborators experience delays completing, or if we or our collaborators terminate, any of our non-clinical studies or clinical trials, or if we or our collaborators are required to conduct additional non-clinical studies or clinical trials, the development pathway, and ultimately the commercial prospects, for our product candidates may be harmed and our ability to generate product revenue from resulting products, if any, will be delayed.

Finally, if we or our collaborators are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies governing clinical trials, our development plans may be impacted. For example, in December 2022, with the passage of Food and Drug Omnibus Reform Act, Congress required sponsors to develop and submit a diversity action plan for each Phase 3 clinical trial or any other “pivotal study” of a new drug or biological product. These plans are meant to encourage the enrollment of more diverse patient populations in late-stage clinical trials of FDA-regulated products. Similarly, the regulatory landscape related to clinical trials in the EU has evolved. The EU Clinical Trials Regulation, or CTR, which was adopted in April 2014 and repeals the EU Clinical Trials Directive, became applicable on January 31, 2022. While the EU Clinical Trials Directive required a separate clinical trial application to be submitted in each member state, to both the competent national health authority and an independent ethics committee, the CTR introduced a centralized process and only requires the

submission of a single application to all member states concerned. If we or our collaborators are not able to fulfill these new requirements, our ability to conduct clinical trials may be delayed or halted.

We or our collaborators may never seek or receive regulatory approval to market any of our products or product candidates outside of the U.S. or receive pricing and reimbursement outside the U.S. at acceptable levels.

We or our collaborators may not seek, or may seek but never receive, regulatory approval to market our products or product candidates outside of the U.S. or in any particular country or region. In order to market any product outside of the U.S., we or our collaborators must establish and comply with the numerous and varying safety, efficacy and other regulatory requirements of other countries. Approval procedures vary among countries and can involve additional non-clinical studies or clinical trials, additional work related to manufacturing and analytical testing on controls, and additional administrative review periods. The time required to obtain approvals in other countries might differ from that required to obtain FDA approval. Marketing approval in one country does not ensure marketing approval in another, but a failure or delay in obtaining marketing approval in one country may have a negative effect on the regulatory process in other countries. The marketing approval processes in other countries may implicate all of the risks detailed above regarding FDA approval in the U.S. as well as other risks. In particular, in many countries outside of the U.S., products must receive pricing and reimbursement approval before the product can be commercialized. Obtaining this approval may require additional studies and data and can result in substantial delays in bringing products to market in such countries and such investment may not be justified from a business standpoint given the market opportunity or level of required investment. Even if we or our collaborators generate the data and information which we or our collaborators believe may be sufficient to file an application for regulatory approval of any of our products or product candidates in a region or country outside the U.S., the relevant regulatory agency may find that we or our collaborators did not meet the requirements for approval, or even if our application is approved, we may have significant post-approval obligations.

Even if we or our collaborators are able to successfully develop our product candidates and obtain marketing approval in a country outside the U.S., we or they may not be able to obtain pricing and reimbursement approvals in such country at acceptable levels or at all, and any pricing and reimbursement approval we or they may obtain may be subject to onerous restrictions such as caps, rebates or other hurdles or restrictions on reimbursement. Failure to obtain marketing and pricing approval in countries outside the U.S. without onerous restrictions or limitations related to pricing, or any delay or other setback in obtaining such approval, would impair our ability or that of our collaborators to market our product candidates successfully or at all in such foreign markets. Any such impairment would reduce the size of our potential market or revenue potential, which could have a material adverse impact on our business, results of operations and prospects.

Any setback or delay in obtaining regulatory approval or commencing marketing, if approved, for our product candidates in a country or region outside the U.S. where we or our collaborators have decided it makes business sense to proceed may have a material adverse effect on our business and prospects.

We rely completely on third-party suppliers to manufacture commercial supplies of our products and clinical drug supplies for our product candidates, and we intend to rely on third parties to produce non-clinical, clinical and commercial supplies of our products and product candidates in the future.

We do not currently have, nor do we plan to acquire or develop, the infrastructure or capability internally to manufacture supplies of our products, including ZURZUVAE, for commercial use or any of our other existing or future product candidates, for use in the conduct of our clinical trials and non-clinical studies or for future commercial use, and we rely completely on third-party suppliers for both active drug substances and finished drug products.

We rely on our contract manufacturers to manufacture sufficient quantities of ZURZUVAE active drug substance, finished drug product and packaged and labeled product. We have also relied on our contract manufacturers for commercial supplies of active drug substance, finished drug product and packaged and labeled product with respect to ZULRESSO for the remaining duration of its commercial availability in the U.S. We also rely on our contract manufacturers to manufacture sufficient quantities of our product candidates for ongoing and

planned clinical trials and non-clinical studies and expect to rely on them to scale our manufacturing processes for future clinical trials, if our development efforts are successful.

We expect our contract manufacturers to comply with current Good Manufacturing Practices, or cGMPs, in the manufacture of our products. The facilities used by our contract manufacturers to manufacture the active pharmaceutical ingredient and final drug product must typically complete a pre-approval inspection by the FDA and other comparable foreign regulatory authorities to assess compliance with applicable requirements, including cGMPs, after we submit the relevant NDA or equivalent foreign regulatory submission to the applicable regulatory agency. Contract manufacturers are subject to inspections by the FDA and regulatory authorities outside the U.S. If the FDA or other regulatory authorities were to identify deficiencies in connection with the inspections of our contract manufacturers for our products or any of our product candidates, the FDA could issue a Form 483, and other regulatory authorities could issue equivalent documents, documenting these deficiencies and require that we provide and comply with a corrective action plan, which could impact our ability to supply product or any of our product candidates. If our contract manufacturers cannot successfully manufacture material that conforms to our specifications and the strict regulatory requirements of the FDA or applicable foreign regulatory authorities, and pass regulatory inspections, on the timelines we expect or at all, they will not be able to secure and/or maintain regulatory approval for their manufacturing facilities with respect to our products.

In addition, we have no direct control over our contract manufacturers' ability to maintain adequate quality control, quality assurance and qualified personnel. Furthermore, all of our third-party contract manufacturers are engaged with other companies to supply and/or manufacture materials or products for such companies, which exposes our third-party contract manufacturers to regulatory risks for the production of such materials and products. As a result, failure to satisfy the regulatory requirements for the production of those materials and products may affect the regulatory clearance of our contract manufacturers' facilities generally. If the FDA or an applicable foreign regulatory agency determines now or in the future that these facilities for the manufacture of our products and product candidates are noncompliant, we may need to find alternative manufacturing facilities, which would significantly adversely delay or impact our commercialization efforts for any approved product and our ability to develop and obtain regulatory approval for our product candidates. Our reliance on contract manufacturers also exposes us to the possibility that they, or third parties with access to their facilities, will have access to and may appropriate our trade secrets or other proprietary information. Also, if a natural disaster were to interrupt or halt production of our drug substance or drug product at one of our third-party contract manufacturers, or cause the loss of batches, we could encounter a supply shortage or face significant costs to rebuild our supply.

We have a long-term supply agreement with our contract manufacturer for ZURZUVAE drug product. We have had long-term supply agreements with our contract manufacturers with respect to ZULRESSO drug substance and drug product. We have an inventory of ZURZUVAE drug product and drug substance in place to help mitigate any potential supply risks, but there is no guarantee that this inventory will be adequate. We do not have arrangements in place for either long-term supply or redundant supply of drug substance or drug product for SAGE-324 or dalzanemdor. Each batch of drug substance and drug product for our product candidates is individually contracted through a purchase order governed by master service and quality agreements.

If our existing contract manufacturing organizations, or CMOs, for our product candidates are not willing to enter into long-term supply agreements, or are not willing or are unable to supply drug substance or drug product to us, we could be required to engage new contract manufacturers who would need to scale up the manufacturing process before we would be able to use the drug product or drug substance they manufacture for clinical trials or for future commercialization, if we are successful and gain approval. In addition, any contract manufacturer will need to complete validation batches, pass an inspection by the FDA and other applicable foreign regulatory authorities, and be approved by regulatory authorities as our manufacturer before we would be able to use drug product or drug substance they manufacture for commercial purposes, which could result in significant delays or gaps in product availability. We plan to continue to rely upon contract manufacturers to manufacture commercial quantities of ZURZUVAE, ZULRESSO (for the duration of its commercial availability in the U.S.), and of any future products that may be approved. If we are unable to maintain arrangements for third-party manufacturing or are unable to do so on commercially reasonable terms, or are unable to obtain timely regulatory approvals in connection with our contract manufacturers, we may not be able to successfully commercialize any approved product, including ZURZUVAE, or successfully complete development of our current or future product candidates.

ZURZUVAE or any of our other current or future products or product candidates, if our ongoing development efforts are successful, may not achieve and maintain broad market acceptance or reimbursement at sufficient levels, which would limit the revenue that we generate from sales.

The commercial success of ZURZUVAE in the U.S. for the treatment of women with PPD, or of any of our current or future products or product candidates, if successfully developed and approved by the FDA or other applicable regulatory authorities, will depend upon the awareness and acceptance among healthcare professionals, patients, policy-makers and healthcare payors, and reimbursement at sufficient levels.

The availability of coverage and adequacy of reimbursement is essential for most patients to be able to access and afford treatments. Patients who are prescribed medications for the treatment of their conditions generally rely on third-party payors to reimburse all or part of the costs associated with their prescription drugs. Government authorities, including the Centers for Medicare & Medicaid Services, or CMS, an agency within the Department of Health and Human Services, or HHS, in the U.S., and third-party payors, such as private health insurers and health maintenance organizations, decide which medications they will pay for and establish reimbursement levels for those medications. Cost containment is a primary concern in the U.S. healthcare industry and elsewhere. Government authorities and these third-party payors have attempted to control costs by limiting coverage and the amount of reimbursement for particular medications. Payors may revise policies and adopt restrictions on coverage for any of our products, including ZURZUVAE, such as requiring patients to try other lower cost therapies prior to reimbursing our product, requiring patients to meet certain severity levels on measurement scales or other criteria more restrictive than the approved label for our product, or requiring other onerous and time-consuming forms of utilization management, such as prior authorization procedures, or they may limit the amount of reimbursement or restrict access altogether. These restrictions or limitations might impede appropriate use of our product for the approved indication. Some payors currently require that healthcare professionals attest that the women with PPD for whom they have prescribed ZURZUVAE have severe symptoms. Restrictions and limitations on reimbursement or delays in obtaining coverage may vary significantly among payors and payor types. As a result, there is uncertainty related to maintaining third-party payor coverage and reimbursement of ZURZUVAE or any of our product candidates, if successfully developed and approved. Coverage and reimbursement by a third-party payor may depend upon a number of factors, including the third-party payor's determination that use of a product is a covered benefit under its health plan; safe, effective and medically necessary; appropriate for the specific patient; cost-effective; and neither experimental nor investigational. Regulatory approvals, pricing and reimbursement for drug products vary widely from country to country.

The inability of us or our collaborators to promptly obtain and maintain coverage and adequate reimbursement rates from both government-funded and private payors for ZURZUVAE for the treatment of women with PPD, and any other approved products that we develop could have a material adverse effect on our operating results, our ability to successfully commercialize our products, our ability to raise capital and our overall financial condition. Even if coverage is provided, we may not be able to realize a sufficient return on our investment, including as a result of restrictions on the type of coverage that is achieved or because we are unable to establish or maintain sufficient pricing.

Obtaining and maintaining coverage and reimbursement approval for a product from a government or other third-party payor can be an expensive and time-consuming process that could require us to provide supporting scientific, clinical and cost effectiveness data for the use of our products to the payor. The industry competition to be included in third-party payors' drug formularies, or lists of medications for which third-party payors provide coverage and reimbursement, often leads to downward pricing pressures on pharmaceutical products. In addition, third-party payors may refuse to include a particular branded drug in their formularies or otherwise restrict patient access to a branded drug when a less costly generic equivalent or other alternative is available. Net prices for drugs may be reduced by mandatory discounts or rebates required by government healthcare programs or private payors, and by any future relaxation of laws that presently restrict imports of drugs from countries where they may be sold at lower prices than in the U.S. Increasingly, third-party payors are requiring that drug companies provide them with predetermined discounts from list prices and are challenging the prices charged for medical products. In addition, many pharmaceutical manufacturers must calculate and report certain price reporting metrics to the government, such as average sales price and best price. Penalties may apply when such metrics are not submitted accurately and on a timely basis. Before granting reimbursement approval, payors may require us to demonstrate, directly or

indirectly, that our product candidates, in addition to treating the target indications, also provide incremental health benefits to patients or healthcare costs savings. We cannot be sure that adequate coverage or reimbursement will be available for ZURZUVAE or any product candidate that we or our collaborators may successfully develop and commercialize or that coverage will be available on reasonable terms.

Market acceptance for any of our approved products and any product candidates that we successfully develop will depend on a number of factors, including, among others:

- the efficacy and safety of our products as demonstrated in clinical trials or in real world use;
- the potential and perceived advantages and limitations of our products over current or future alternative treatment options, including in the case of ZURZUVAE for the treatment of women with PPD, the availability of lower cost antidepressants;
- the incidence and severity of any side effects of the products;
- limitations or warnings contained in the labeling approved for our products by the FDA or other applicable regulatory authorities, such as the boxed warning for ZURZUVAE related to driving impairment and other warnings, precautions and risks identified in the label;
- the clinical indications and size of patient populations for which our products are approved;
- the convenience, risk-benefit profile, ease and availability of alternative treatments already approved or expected to be commercially launched in the near future;
- the willingness of the target patient population to try new therapies and of healthcare professionals to prescribe these therapies, and our ability to increase awareness of our approved products through marketing efforts;
- the strength and effectiveness of our sales, marketing and distribution strategies and support or that of our collaborators;
- publicity concerning our products or competing products and treatments;
- pricing and cost effectiveness; or
- the availability of sufficient third-party coverage or reimbursement, the nature and complexity of restrictions on coverage, and the willingness of patients to pay out-of-pocket in the absence of such coverage or reimbursement.

Our and our collaborators efforts to change the treatment paradigm for a given disorder or to educate the medical community and third-party payors about the benefits of any current or future products, to the extent permitted, including ZURZUVAE for the treatment of women with PPD, may require significant resources and may never be successful. If ZURZUVAE, or any of our other current or future products or product candidates, if successfully developed and approved by the FDA or other applicable regulatory authorities, does not achieve an adequate level of acceptance by patients, healthcare providers, and payors, or reimbursement at reasonable levels and without significant or complex restrictions, or if the patient population for which any such product is approved is smaller than we expect, we may not generate sufficient revenue from our products to become or remain profitable or to adequately fund operations or may not do so to the degree or on the timelines we expect.

Even if marketing approval is granted for a product, we may face significant post-marketing obligations and future development and regulatory difficulties.

Regulatory authorities may impose significant and potentially costly post-marketing obligations with respect to approval of any product, including post-marketing studies, additional CMC work and additional pediatric studies. For example, the FDA has imposed post-marketing commitments with respect to approval of ZULRESSO and ZURZUVAE, and we may encounter issues or delays in the conduct of these post-marketing commitments or we may generate unexpected results. For ZURZUVAE, the FDA is requiring two post-marketing studies: a

pharmacokinetic and safety study in adolescent females who have completed puberty and an embryofetal toxicity study in a second species.

In the event we or our collaborators elect, or are required, to proceed with pediatric studies of any of our product candidates in any indication, regulatory authorities may also require additional non-clinical studies or clinical trials be completed prior to commencement of such pediatric studies.

As was the case with zuranolone and brexanolone, the FDA may recommend controlled substance scheduling for our current or future product candidates. If products are determined to be controlled substances, the manufacturing, shipping, storing, selling and using of the products will be subject to an additional regulation. Distribution, prescribing and dispensing of these drugs are also regulated. Because of their restrictive nature, these laws and regulations could limit commercialization of our product candidates containing controlled substances. Failure to comply with these laws and regulations could also result in withdrawal of our DEA registrations, disruption in manufacturing and distribution activities, consent decrees, criminal and civil penalties and state actions, among other consequences. The DEA regulates controlled substances as Schedule I, II, III, IV or V substances. Schedule I substances by definition have no established medicinal use, and may not be marketed or sold in the U.S. A pharmaceutical product may be listed as Schedule II, III, IV or V, with Schedule II substances considered to present the highest risk of abuse and Schedule V substances the lowest relative risk of abuse among such substances. ZURZUVAE (zuranolone) and ZULRESSO (brexanolone) are currently regulated as a Schedule IV controlled substances. Other Schedule IV controlled substances include sedative hypnotics such as benzodiazepines.

ZURZUVAE and ZULRESSO (while commercially available), are, and any future approved products will also be, subject to ongoing FDA requirements governing the labeling, packaging, storage and promotion of the product and record-keeping and submission of safety and other post-market information. The FDA has significant post-marketing authority, including, for example, the authority to require labeling changes based on new safety information and to require post-marketing studies or clinical trials to evaluate serious safety risks, safety and efficacy in pediatric populations or alternate doses or dose regimens.

The FDA also has the authority to require, as part of an NDA or post-approval, the submission of a REMS. For example, the FDA has required a REMS for ZULRESSO. Any REMS required by the FDA may lead to increased costs to assure compliance with the REMS and with additional post-approval regulatory requirements and potential requirements or restrictions on the sale of approved products, all of which could lead to lower sales volume and revenue. In addition, if we are unable to comply with any REMS imposed on any of our products, we may face additional restrictions, limitations or substantial penalties, any of which may materially adversely affect our business and results of operations.

We, our collaborators and the third-party manufacturers of our drug substance and drug products and our respective facilities are subject to extensive regulations in the manufacture of our products and product candidates, including GMP, and are subject to continual review and periodic inspections by the FDA and other regulatory authorities for compliance with GMPs and other regulations. If we, our collaborators or a regulatory agency discover problems with our approved products or product candidates such as poor control of production processes or other problems with the facility where our products are manufactured or in the manufacturing process, introduction of contaminants, or adverse events of unanticipated severity or frequency, a regulatory agency may impose restrictions on our products, the manufacturer or us or our collaborators, including requiring withdrawal of such products from the market or suspension of manufacturing. If we, our collaborators, our approved products, our product candidates, or the manufacturers for our products or product candidates fail to comply with applicable regulatory requirements, a regulatory agency may, among other things:

- issue warning letters or untitled letters;
- seek an injunction or impose civil or criminal penalties or monetary fines;
- suspend or withdraw marketing approval;
- suspend any ongoing clinical trials;

- refuse to approve pending applications or supplements to applications submitted by us;
- suspend or impose restrictions on operations, including costly new manufacturing requirements; or
- seize or detain products, refuse to permit the import or export of products, or require that we initiate a product recall.

Competing therapies may exist or could be approved that adversely affect the amount of revenue we are able to generate from the sale of ZURZUVAE or any of our other current or future product candidates, if successfully developed and approved.

The biopharmaceuticals industry is highly competitive. There are many public and private companies, universities, governmental agencies and other research organizations actively engaged in the research and development of products that may be similar to our products or product candidates or address similar markets. It is probable that the number of companies seeking to develop products and therapies similar to our products or targeting similar indications will increase. Many of our potential competitors, alone or with their strategic partners, have substantially greater financial, technical and human resources than we do, and significantly greater experience in the discovery and development of product candidates, obtaining FDA and other regulatory approvals of treatments and the commercialization of those treatments. Mergers and acquisitions in the biotechnology and pharmaceutical industries may result in even more resources being concentrated among a smaller number of our competitors. We expect competition in the indications we are pursuing will focus on efficacy, safety, convenience, availability, and price. Our commercial opportunity could be reduced or eliminated if our competitors develop and commercialize products that are perceived to be safer, 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.

Currently, the only pharmacological therapies specifically approved for the treatment of PPD are ZURZUVAE and ZULRESSO. We plan to discontinue commercial availability of ZULRESSO in the U.S. on December 31, 2024. ZURZUVAE and ZULRESSO both currently compete with the current standard of care for PPD which commonly consists of psychotherapy; however, patients with moderate or severe symptoms of PPD are often prescribed antidepressant medications such as selective serotonin reuptake inhibitors, or SSRIs, and serotonin and norepinephrine reuptake inhibitors, or SNRIs. ZURZUVAE may also face competition from drugs currently in development, if successfully developed and approved in the future for the treatment of PPD, including potentially LPCN 1154, an oral formulation of the neuroactive steroid brexanolone under development by Lipocine, Inc. under the streamlined 505(b)(2) regulatory pathway, which allows for potential approval of an abbreviated NDA by the FDA, and BRII-296, an intramuscular formulation of brexanolone being developed by Brii Biosciences. Lipocine has announced that it plans to seek to show bioequivalence of LPCN 1154 to brexanolone and reference ZULRESSO data.

In the field of neuroactive steroids focused specifically on modulation of $GABA_A$ receptors, we also face competition from a number of companies, including Marinus Pharmaceuticals, Inc., which received FDA approval of ganaxolone, a known $GABA_A$ positive allosteric modulator neuroactive steroid, to treat seizures associated with CDKL5 deficiency disorder, a rare, genetic epilepsy. Other $GABA_A$ competitors include darigabat, which is being developed by Cerevel Therapeutics, Inc. (acquired byAbbVie Inc.) for the treatment of epilepsy and panic disorder.

Dalzanemdor is an oxysterol-based positive allosteric modulator of the NMDA receptor, which we are exploring in cognitive impairment associated with Huntington’s disease. A number of other companies are working to develop products to treat Huntington’s disease.

Our existing collaborations with Biogen and Shionogi, and any future collaborations, may not lead to the successful development or regulatory approval of product candidates or commercialization of products. Our collaborators may have competing priorities, conflicting incentives, or different views than us on key decisions, including regulatory, development, or commercialization strategy or appropriate program spending, that may hamper or delay our development and commercialization efforts or increase our costs. Our business may be adversely affected and we may be subject to delays, disputes, or litigation if we and any of our collaborators disagree significantly, if any of our collaborators fails to perform its obligations or terminates our collaboration, or if we are not able to establish future collaborations that we believe to be important to our business on commercially reasonable terms.

Our drug development programs, the commercialization of ZURZUVAE for the treatment of women with PPD, and any potential commercialization of our product candidates will require substantial additional cash to fund expenses. For some of our product candidates, we may decide to collaborate with pharmaceutical and biotechnology companies for the development and potential commercialization of those product candidates in some or all markets.

We and our collaboration partner Biogen achieved regulatory approval in the U.S. of ZURZUVAE for the treatment of adults with PPD, and launched ZURZUVAE for that indication. Our collaboration with Biogen may not lead to successful commercialization of ZURZUVAE in the U.S. or successful development of zuranolone in Biogen's ex-U.S. territory. In the third quarter of 2023, our collaboration partner, Shionogi, filed an NDA in Japan for zuranolone for the treatment of MDD; however, Shionogi may not be successful in obtaining regulatory approval for zuranolone for the treatment of MDD, or if approved, may not be successful in commercializing zuranolone in Japan. Our existing and future collaborations, if any, may also not lead to the successful development and commercialization of ZURZUVAE in other indications or territories or of any other products. Our collaborators face both the same challenges and hurdles that we would face in the development and commercialization of product candidates if we were engaged in the activities solely ourselves, as well as additional challenges related to operating under a collaboration. The efforts under our existing collaborations may not be successful and we may never receive any additional milestone payments, profit-share revenue or royalty payments from Biogen or Shionogi. For example, while ZURZUVAE was approved for the treatment of adults with PPD in the U.S., the FDA issued a CRL to the NDA for zuranolone for the treatment of MDD in the U.S. Although we may become eligible to earn certain milestone payments in connection with our collaborations, we may never meet such milestones or actually receive such milestone payments. Because we and Biogen have agreed not to pursue further development for zuranolone for the treatment of MDD in the U.S., we will not receive the $150.0 million milestone payment for the first commercial sale of ZURZUVAE for the treatment of MDD in the U.S. Our collaborators may decide to terminate their collaboration with us. For example, in September 2024, after we and Biogen decided to discontinue development of SAGE-324 in essential tremor, Biogen notified us of its termination of our collaboration agreement solely with respect to SAGE-324 on a worldwide basis, effective February 17, 2025. We are evaluating next steps, if any, for other potential indications of SAGE-324. We may choose not to further develop SAGE-324 in any indication.

In addition, under most collaborations, including our existing collaborations, a certain degree of control in decision-making is transferred to or shared with our collaborators. Our collaborators may use their decision-making authority to make decisions that could delay, decrease the potential of, or otherwise adversely impact, development of our product candidates or commercialization of approved products. Similarly, where we share decision-making authority, the need to gain alignment on decisions may slow or impede advancement of our programs or commercialization of an approved product, and cause us not to be able to meet our timelines or achieve our goals. Our collaborators may have competing priorities or different incentives that cause them to divert resources away from our collaboration, or we may not agree on appropriate spending levels or regulatory, development or commercialization strategy, which could hamper our overall development and commercialization efforts or increase our overall spending. Our collaborators may independently develop, or develop with a competitor, competitive products or may believe that product candidates being evaluated in the collaboration could be competitive with the collaborator's own products. In the case of the collaboration with Biogen, both companies have agreed to certain exclusivity provisions for certain products in specified indications which may limit certain development opportunities outside the collaboration. In addition, if we depend on collaborators for capabilities and funding for major product development efforts or commercialization globally or in key territories, then our business may be adversely affected if our collaborator fails to perform its obligations under the agreement or the collaboration

terminates. Disputes may also arise with respect to the ownership of rights to technology or products developed with collaborators, which could have an adverse effect on our ability to develop and commercialize any affected product candidate.

Collaborations are complex and time-consuming to negotiate and document. In addition, there have been a significant number of recent business combinations among large pharmaceutical companies that have resulted in a reduced number of potential future collaborators. We may not be able to negotiate additional collaborations on a timely basis, on acceptable terms, or at all.

We may not be successful in our efforts to identify or discover additional product candidates beyond our existing product candidates or to file investigational new drug, or IND, applications for clinical development of new compounds at the rate we expect, or 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.

The success of our business depends upon our and our collaborators' ability not only to successfully commercialize existing approved products but also to develop, gain approval of and commercialize products based on our current product candidates and to generate new compounds for development in the future and to successfully complete the non-clinical work necessary to file INDs to pursue clinical development of such new compounds. Our research programs may fail to generate new compounds that meet the standards for non-clinical development. Even if we are successful in generating such compounds, we may not be able to produce the non-clinical and other data necessary to support IND applications for clinical development, in each case in the number or at the rate we expect or at all for a number of reasons. For example, we may not be able to identify a sufficient number of new targets in areas of interest to us. Our research methodology may be unsuccessful in generating a sufficient number of new compounds appropriate for non-clinical testing in the target areas we identify. Even if we generate new compounds in areas of interest to us, we may determine that those compounds are not appropriate for non-clinical development, or we may generate data in non-clinical development that do not support IND filings for clinical development. We may not have, or devote, sufficient technical, financial, and human resources to our research efforts at the various stages needed to identify targets, generate compounds, conduct non-clinical studies and prepare INDs. Additional potential product candidates may be shown to have harmful side effects or may not have a positive risk/benefit profile or may have other characteristics that may make the product candidates not appropriate for further development or unlikely to receive marketing approval. Further, even if we generate new compounds in areas of interest, we may determine that those compounds are not worth pursuing for strategic reasons, including new legislation that may impact the viability of commercializing such compounds, if approved.

Because we have limited financial and management resources, we focus on a limited number of clinical and research programs and product candidates and are currently focused on certain brain health disorders. As a result, we may forego or delay pursuit of opportunities with certain product candidates or for other indications that later prove to have greater commercial potential. Research programs to identify new product candidates require substantial technical, financial and human resources. We may focus our efforts and resources on potential programs or product candidates that ultimately prove to be unsuccessful and may not yield any commercially viable drugs. Our resource allocation decisions may cause us to fail to capitalize on other viable opportunities. If we do not accurately evaluate the commercial potential or target market for a particular product candidate, we may relinquish valuable rights through future collaboration, licensing or other royalty arrangements in cases in which it would have been more advantageous for us to retain such sole development and commercialization rights. If any of these events occur, it may have a material adverse effect on our business.

We rely, and expect that we will continue to rely, on third parties to conduct any clinical trials for our product candidates. If these third parties do not successfully carry out their contractual duties, comply with applicable standards and meet expected deadlines, we may not be able to successfully develop and obtain regulatory approval for our products candidates, and our business could be substantially harmed.

We do not have the ability to independently conduct clinical trials. We rely on medical institutions, clinical investigators, contract laboratories and other third parties, such as CROs, to conduct clinical trials of our product

candidates. We enter into agreements with third-party CROs to provide monitors for and to manage data for our ongoing clinical trials. We rely heavily on these parties for execution of clinical trials for our product candidates and control only certain aspects of their activities. As a result, we have less direct control over the conduct, timing and completion of these clinical trials and the management of data developed through clinical trials than would be the case if we were relying entirely upon our own staff. Communicating with outside parties can also be challenging, potentially leading to mistakes as well as difficulties in coordinating activities. Outside parties may:

- have staffing difficulties and shortages, attrition of experienced staff, and other resource constraints;
- fail to comply with contractual obligations;
- fail to comply with current Good Clinical Practices, or GCPs, or experience other regulatory compliance issues;
- undergo changes in priorities or become financially distressed;
- misappropriate our intellectual property;
- form relationships with other entities, some of which may be our competitors; or
- be impacted by changes to the macroeconomic and geopolitical environment or disruptions arising from pandemics or other global heath crises, and the downstream effects of these changes or disruptions.

These factors may materially adversely affect the willingness or ability of third parties to conduct our clinical trials and may subject us to unexpected cost increases that are beyond our control. In addition, certain Chinese CROs that supply us with medicinal chemistry and drug metabolism research may become subject to trade restrictions, sanctions, and other regulatory requirements by the U.S. government, including the recently proposed BIOSECURE Act, any of which could restrict or even prohibit our ability to work with such entities, thereby potentially disrupting our research activities. Such disruption could have adverse effects on the development of our product candidates and our business operations.

Nevertheless, we and our collaborators are responsible for ensuring that each of our clinical trials is conducted in accordance with the applicable protocol, legal and regulatory requirements, and scientific standards, and our reliance on CROs does not relieve us of our regulatory responsibilities. We and our collaborators, clinical investigators, and our CROs are required to comply with regulations and guidelines, including GCPs, for conducting, monitoring, recording and reporting the results of clinical trials to ensure that the data and results are scientifically credible and accurate, and that the trial patients are adequately informed of the potential risks of participating in clinical trials. These regulations are enforced by the FDA, the Competent Authorities of the Member States of the European Economic Area, or EEA, and comparable foreign regulatory authorities for any product candidates in clinical development or where clinical trials are being conducted. If we and our collaborators or our CROs or contract manufacturers fail to comply with these regulations or if the quality or accuracy of the clinical data obtained is compromised due to the failure to adhere to our clinical protocols or other regulatory requirements or for other reasons, and we and our collaborators are unable to rely on clinical data collected, we and our collaborators may be required to repeat clinical trials or extend the duration of, or increase the size of our clinical trials or we may not be able to rely on the results of our clinical trials. This would delay the regulatory approval process, and could also subject us to enforcement action up to and including civil and criminal penalties. If any of our relationships with third-party CROs terminate or if a CRO needs to be replaced, we may not be able to enter into arrangements with alternative CROs in a timely manner or at all. Any of these issues could significantly delay or prevent regulatory approval of our product candidates and require significantly greater expenditures. In such an event, we believe that our financial results might be harmed, our costs could increase and our ability to generate revenue from products beyond ZURZUVAE could be delayed.

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

To accomplish our objectives, we require a strong management team with expertise in research and development, clinical development and commercialization. Although we have entered into employment agreements with each of our executive officers, each of them is employed “at will” and may terminate his or her employment

with us at any time. We do not maintain "key person" insurance for any of our executives or other employees. Recruiting and retaining qualified personnel is critical to our success. We may not be able to attract and retain these personnel on acceptable terms given the competition among numerous pharmaceutical and biotechnology companies for similar personnel. We also experience competition for the hiring of scientific personnel from universities and research institutions. Failure to succeed in commercializing approved products or in conducting clinical trials or in obtaining regulatory approval may make it more challenging to recruit and retain qualified personnel. If we are unable to continue to attract and retain high quality personnel, our development efforts, commercialization activities, business, financial condition, results of operations and growth prospects could be adversely affected.

We face potential product liability exposure, and, if claims are brought against us, we may incur substantial liability.

The sale of ZURZUVAE, ZULRESSO, and any future approved products and the use of our product candidates in clinical trials expose us to the risk of product liability claims. Product liability claims might be brought against us by patients, healthcare providers or others using, prescribing, selling or otherwise coming into contact with our products and product candidates. For example, we may be sued if any product or product candidate allegedly causes injury or is found to be otherwise unsuitable during clinical trials, manufacturing, marketing, sale or commercial use. 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, including as a result of interactions with alcohol or other drugs, knowledge of risks, negligence, strict liability and a breach of warranties. Claims could also be asserted under state consumer protection laws. If we become subject to product liability claims and cannot successfully defend ourselves against them, we could incur substantial liabilities. Regardless of merit or eventual outcome, product liability claims may result in, among other things:

- withdrawal of patients from our clinical trials, or difficulty in enrolling clinical trials;
- substantial monetary awards to patients or other claimants;
- decreased demand for our approved products;
- damage to our reputation and exposure to adverse publicity;
- increased FDA warnings on product labels;
- litigation costs;
- distraction of management's attention from our primary business;
- loss of revenue; and
- withdrawal of products from the market or our inability to successfully gain approval of product candidates.

We maintain product liability insurance coverage with a $20.0 million annual aggregate coverage limit. Nevertheless, our insurance coverage may be insufficient to reimburse us for any expenses or losses we may suffer. Moreover, 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, including if insurance coverage becomes increasingly expensive. Large judgments have been awarded in class action lawsuits based on drugs that had unanticipated side effects. The cost of any product liability litigation or other proceedings, even if resolved in our favor, could be substantial, particularly in light of the size of our business and financial resources. A product liability claim or series of claims brought against us could cause our stock price to decline and, if we are unsuccessful in defending such a claim or claims and the resulting judgments or settlements exceed our insurance coverage, our financial condition, business and prospects could be materially adversely affected.

If we fail to comply with our reporting and payment obligations under the Medicaid Drug Rebate Program or other governmental pricing programs, we could be subject to additional reimbursement requirements, penalties,

sanctions and fines, which could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

The Medicaid Drug Rebate Program, which we participate in, and other governmental programs impose obligations to report pricing figures to the federal government, require us to pay rebates and participate in discount programs. Other programs impose limits on the price we or our collaborators are permitted to charge certain entities for ZURZUVAE, ZULRESSO (for the duration of its commercial availability), or for any future products for which we receive regulatory approval. Statutory and regulatory changes or binding guidance regarding these programs and their requirements could negatively affect the coverage and reimbursement by these programs of ZURZUVAE or any future products for which we receive regulatory approval and could negatively impact our results of operations. Our failure to comply with these price reporting and rebate payment obligations could negatively impact our financial results. The Patient Protection and Affordable Care Act, as amended, referred to herein as the ACA, and regulations promulgated thereunder could affect our obligations in ways we cannot anticipate.

Pricing and rebate calculations vary among products and programs. The calculations are complex and are often subject to interpretation by us, governmental or regulatory authorities and the courts. If we become obligated to restate or recalculate the amounts we report under these programs, our costs for complying with the laws and regulations governing the Medicaid Drug Rebate Program and our price discounts and rebates could be increased. Additionally, we could be held liable for errors associated with our submission of pricing data under the Medicaid Drug Rebate Program and other federal or state drug pricing programs, including retroactive rebates and program refunds, and if we are found to have knowingly submitted false average manufacturer price or best price information to the government, civil monetary penalties per item of false information. Certain failures to submit required data could result in a civil monetary penalty for each day the information is late beyond the due date and be grounds for CMS to terminate our Medicaid drug rebate agreement, pursuant to which we participate in the Medicaid program, or, if we fail to comply with 340B program requirements, the Health Resources and Services Administration, or HRSA, could decide to terminate our 340B program participation agreement. In the event that CMS terminates our rebate agreement or HRSA terminates our 340B program participation agreement, no federal payments would be available under Medicaid or Medicare Part B for our covered outpatient drugs. We are also subject to civil monetary and other penalties applicable to the drug pricing negotiation program and Part B and Part D inflation rebate programs, as discussed further below under the risk factor entitled "*Healthcare regulations aimed at reducing healthcare costs may have a material adverse effect on our business or results of operation*."

We are subject to other laws and regulations, which could expose us to criminal sanctions, civil penalties, contractual damages, reputational harm and diminished profits and future earnings.

We are subject to a number of healthcare and other statutory and regulatory requirements and enforcement by the federal government and the states and foreign governments in the countries in which we currently or may in the future conduct our business.

Our current or future interactions and arrangements with third-party payors, healthcare providers, patients, healthcare settings, and others who play a role in the recommendation, prescription, reimbursement and administration of ZURZUVAE and ZULRESSO, and will play a similar role with respect to any of our current or future product candidates, if successfully developed and approved, are governed in part by broadly applicable fraud and abuse and other healthcare laws and regulations that may constrain the business or financial arrangements and relationships through which we market, sell and distribute ZURZUVAE or ZULRESSO (while commercially available), or expect to market, sell and distribute any future approved products. Restrictions under applicable federal and state healthcare laws and regulations include the following:

- The federal anti-kickback statute prohibits, among other things, persons from knowingly and willfully soliciting, offering, receiving or providing remuneration, directly or indirectly (including any kickback, bribe or certain rebates), in cash or in kind, to induce or reward either the referral of an individual for, or the purchase, order or recommendation of, any good or service, for which payment may be made under federal healthcare programs such as Medicare and Medicaid. This statute has been interpreted to apply to arrangements between pharmaceutical companies on the one hand, and prescribers, purchasers and formulary managers, among others, on the other.

- The federal False Claims Act imposes criminal and civil penalties, including those from civil whistleblower or qui tam actions, against individuals or entities for knowingly presenting, or causing to be presented, to the federal government, claims for payment that are false or fraudulent or making a false statement to avoid, decrease, or conceal an obligation to pay money to the federal government, with potential liability including mandatory treble damages and significant per-claim penalties. Pharmaceutical companies have faced enforcement actions under the False Claims Act in connection with their alleged off-label promotion of drugs, purportedly concealing price concessions in the pricing information submitted to the government for government price reporting purposes, and allegedly providing free product to customers with the expectation that the customers would bill federal health care programs for the product, among other activities. In addition, the government may assert that a claim including items or services resulting from a violation of the federal anti-kickback statute constitutes a false or fraudulent claim for purposes of the False Claims Act.
- The federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, imposes criminal and civil liability for executing a scheme to defraud any healthcare benefit program and also imposes privacy, security and breach reporting obligations, including mandatory contractual terms, with respect to safeguarding the privacy, security and transmission of individually identifiable health information upon covered entities subject to the rule.
- The federal false statements statute prohibits knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false statement in connection with the delivery of or payment for healthcare benefits, items or services.
- The federal transparency requirements, sometimes referred to as the "Sunshine Act", under the ACA require manufacturers of drugs, devices, biologics and medical supplies that are reimbursable under Medicare, Medicaid, or the Children's Health Insurance Program to report to CMS information related to physician payments and other transfers of value made to physicians, certain non-physician providers, and teaching hospitals, as well as ownership and investment interests held by physicians and their immediate family members.
- Analogous state laws and regulations, such as state anti-kickback and false claims laws and transparency laws, may apply to sales or marketing arrangements and claims involving healthcare items or services reimbursed by non-governmental third-party payors, including private insurers, and some state laws require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government in addition to requiring drug manufacturers to report information related to payments to physicians and other healthcare providers or marketing expenditures and drug pricing.
- Various federal and state health information and data protection laws and regulations, and similar types of laws outside the U.S., govern the collection, use, disclosure and protection of health-related and other personal information by us and our collaborators.

Ensuring that our future practices and business arrangements comply with applicable healthcare laws and regulations is costly. It is possible that governmental authorities will conclude that our business practices and arrangements do not comply with current or future statutes, regulations or case law involving applicable fraud and abuse or other healthcare laws and regulations. If our practices or operations, including activities conducted by our commercial team or other of our employees, consultants or vendors, were found to be in violation of any of these laws or any other governmental regulations that may apply to us, we may be subject to significant civil, criminal and administrative penalties, damages, fines and exclusion from government funded healthcare programs, such as Medicare and Medicaid, any of which could substantially disrupt our operations and materially adversely affect our business and financial condition. We may also be substantially negatively impacted if governmental authorities conclude that the business practices of one of our collaborators does not comply with applicable laws. If any of the physicians or other providers or entities with whom we expect to do business are found not to be in compliance with applicable laws, they may be subject to criminal, civil or administrative sanctions, including exclusions from government funded healthcare programs.

We and our employees are also subject to other statutes and regulations related to our business, including: regulations imposed by the FDA and applicable non-U.S. regulators, as previously discussed; anti-bribery and anti-corruption laws and regulations applicable to activities outside the U.S.; rules on reporting financial and other information or data timely and accurately; and rules related to insider trading.

Although we have adopted a code of conduct and have an active compliance program, it is not always possible to identify and deter employee, consultant, vendor or collaborator misconduct, and the precautions we take to detect and prevent this activity may be ineffective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure by such persons to comply with these laws or regulations.

Data collection is governed by restrictive regulations governing the use, processing, and cross-border transfer of personal information. Compliance with these regulations can be time-consuming and onerous. If we are found to have improperly handled personal information, we may become subject to fines and penalties, litigation and reputational harm.

We must comply with numerous federal, state and non-U.S. laws which govern the privacy and security of health and other personal information. As described above, to the extent applicable to our business activities, HIPAA imposes certain requirements relating to the privacy, security and transmission of individually identifiable health information. In addition, when we conduct clinical trials in the U.S., any personal information that is collected in connection with these trials also is regulated by the Federal Policy for the Protection of Human Subjects (the Common Rule) which creates obligations for our company when conducting these trials.

We may enroll subjects in our future clinical trials in the EU or other countries. When we do so, we may be subject to additional privacy restrictions, including restrictions relating to the collection, use, storage, transfer, and other processing of personal data, including personal health data, regarding these individuals. Clinical trial activities in the EEA, for example, are governed by the General Data Protection Regulation, or GDPR, in relation to the processing of personal data. The GDPR imposes several requirements on companies that process personal data, strict rules on the transfer of personal data out of the EEA, including to the U.S., and fines and penalties for failure to comply with the requirements of the GDPR and the related national data protection laws of the EU Member States. The GDPR also confers a private right of action on data subjects and consumer associations to lodge complaints with supervisory authorities, seek judicial remedies, and obtain compensation for damages resulting from violations of the GDPR in some situations. The obligations under the GDPR may be onerous and adversely affect our business, financial condition, results of operations and prospects. Compliance with the GDPR is a rigorous and time-intensive process that may increase our cost of doing business or require us to change our business practices, and despite those efforts, there is a risk that we may be subject to fines and penalties, litigation, and reputational harm in connection with any European activities, including processing of personal data originating from the EU. The issues related to the transfer of personal data are subject to substantial uncertainty at this time, and there can be no reasonable level of confidence that any such data transfers will be found to be consistent with EU law if they are challenged. The exit of the United Kingdom, or UK, from the EU, often referred to as Brexit, has created uncertainty with regard to future data protection regulation in the UK. The European Commission has adopted an adequacy decision concerning the level of data protection in the UK. Personal data may now flow freely from the EEA to the UK; however, the European Commission may suspend the adequacy decision if it decides that the UK no longer provides for an adequate level of data protection. Similar laws exist in many other countries around the world, and these laws (which are evolving and expanding) create complicated and potentially inconsistent obligations that may impact our business.

We are also subject to the California Consumer Privacy Act, or CCPA, which creates individual privacy rights for California consumers (as defined in the law) and places increased privacy and security obligations on entities handling personal data of consumers or households. While there is currently an exception for protected health information that is subject to HIPAA and clinical trial regulations, as currently written, the CCPA may impact our business activities. The CCPA also has been amended through a recent referendum in California that creates additional obligations that went into effect on January 1, 2023. In November 2020, California voters approved the California Privacy Rights Act, or CPRA, ballot initiative which introduced significant amendments to the CCPA and

established and funded a dedicated California privacy regulator, the California Privacy Protection Agency, or the CPPA. New implementing regulations will be issued under the CPRA that may lead to new or additional obligations for us. Failure to comply with the CCPA may result in, among other things, significant civil penalties and injunctive relief, or statutory or actual damages. In addition, California residents have the right to bring a private right of action in connection with certain types of incidents. These claims may result in significant liability and damages. In addition to California, several other states have passed comprehensive privacy laws similar to the CCPA. These laws are either in effect or will go into effect sometime before the end of 2026. Like the CCPA, these laws create obligations related to the processing of personal information, as well as special obligations for the processing of "sensitive" data, which includes health data in some cases. Some of the provisions of these laws may apply to our business activities. Other states will be considering similar laws in the future. There are also states that are specifically regulating health information that may affect our business. For example, Washington state recently passed a health privacy law that will regulate the collection and sharing of health information, and the law also has a private right of action. Connecticut and Nevada have also passed similar laws regulating consumer health data and other states likely will consider similar legislation in 2024 and beyond.

In addition, there are substantial efforts at the federal level to pass a national data privacy law that may impact our business activities. The uncertainty, ambiguity, complexity and potential inconsistency surrounding the implementation and interpretation of CCPA and other enacted or potential laws in other states and at the federal level exemplify the vulnerability of our business to the evolving regulatory environment related to the privacy, security and confidentiality of personal data and protected health information. We may be subject to fines, penalties, or private actions in the event of non-compliance with such laws. These laws may impact our business activities, including our identification of research subjects, relationships with business partners and ultimately the marketing and distribution of our products. We have implemented processes to manage compliance with the CCPA and continue to assess the impact of the CPRA, and other federal and state legislation, on our business as additional information and guidance becomes available.

In addition to the foregoing, any breach of privacy laws or data security laws, particularly resulting in a significant security incident or breach involving the misappropriation, loss or other unauthorized use or disclosure of sensitive or confidential patient or consumer information, could have a material adverse effect on our business, reputation and financial condition. As a data controller, we will be accountable for any third-party service providers we engage to process personal data on our behalf, including our CROs. There is no assurance that privacy and security-related safeguards we implement will protect us from all risks associated with the third-party processing, storage and transmission of such information. In certain situations, both in the U.S. and in other countries, we also may be obligated as a result of a security breach to notify individuals and/or government entities about these breaches.

Additionally, in October 2022, President Joseph Biden signed an executive order to implement the EU-U.S. Data Privacy Framework, which would serve as a replacement to the EU-U.S. Privacy Shield. The EU initiated the process to adopt an adequacy decision for the EU-U.S. Data Privacy Framework in December 2022 and the European Commission adopted the adequacy decision on July 10, 2023. The adequacy decision will permit U.S. companies who self-certify to the EU-U.S. Data Privacy Framework to rely on it as a valid data transfer mechanism for data transfers from the EU to the U.S. However, some privacy advocacy groups have already suggested that they will be challenging the EU-U.S. Data Privacy Framework. If these challenges are successful, they may not only impact the EU-U.S. Data Privacy Framework, but also further limit the viability of the standard contractual clauses and other data transfer mechanisms. The uncertainty around this issue may impact our activities with companies in the EU, and any potential future business operations in the EU.

The FDA and other regulatory and enforcement authorities actively enforce the laws and regulations prohibiting the promotion of off-label uses of prescription products. If we are found to have improperly promoted off-label uses, we may become subject to significant liability.

The FDA and other regulatory and enforcement authorities strictly regulate the promotional claims that may be made about prescription products and enforce laws and regulations prohibiting the promotion of unapproved, or "off-label" uses. In particular, a product may not be promoted for uses that are not approved by the FDA or such other

regulatory authorities as reflected in the approved labeling of the product. For example, ZURZUVAE is approved in the U.S. for the treatment of adults with PPD only and may not be promoted for any uses that are not approved by the FDA, including MDD. If we are found to have promoted off-label uses for any product, we may become subject to significant liability. The federal government has levied large civil and criminal fines against companies for alleged improper promotion and has taken steps to restrict promotional activities of those companies. Pharmaceutical companies have also been prosecuted and incurred significant civil, criminal and administrative penalties, damages, and fines under the False Claims Act in connection with their alleged off-label promotion of drugs. Any promotion of the off-label use of ZURZUVAE, ZULRESSO, or any of our other products by us or any of our employees could subject us to significant liability, which would materially adversely affect our business and financial condition.

Our future growth may depend, in part, on our ability to penetrate foreign markets, where we would be subject to additional regulatory burdens, price controls, reimbursement issues and other risks and uncertainties, and could negatively impact our U.S. business.

Our future profitability may depend, in part, on our ability, ourselves or through our collaborators, to commercialize our products and product candidates in foreign markets.

The pricing of prescription pharmaceuticals in foreign markets is subject to foreign governmental control. In these countries, pricing negotiations with governmental authorities can take considerable time after the receipt of regulatory approval for a product. To obtain reimbursement or pricing approval in some countries, we may be required to conduct a clinical trial that compares the cost-effectiveness of our product candidates to other available therapies. If reimbursement of our products is unavailable or limited in scope or amount, or if pricing is set at unsatisfactory levels, our ability to generate revenues and become profitable could be impaired.

In some countries, including Member States of the EU, the pricing of prescription drugs is subject to governmental control. Additional countries may adopt similar approaches to the pricing of prescription drugs. There can be considerable pressure by governments and other stakeholders on prices and reimbursement levels, including as part of cost containment measures. Political, economic and regulatory developments may further complicate pricing negotiations, and pricing negotiations may continue after coverage and reimbursement have been obtained. Reference pricing used by various countries and parallel distribution, or arbitrage between low-priced and high-priced countries, can further reduce prices. In the U.S., recent legislative and administrative policies and proposals signal a desire to lower drug prices in the U.S. As a result, we or our collaborators outside the U.S. in the future may be limited in the prices we are able to charge for our products in the U.S. Publication of discounts by third-party payors or authorities may lead to further pressure on the prices or reimbursement levels within the country of publication and other countries. If pricing is set at unsatisfactory levels or if reimbursement of our products is unavailable or limited in scope or amount, our revenues from sales by us or our collaborators and the potential profitability of our products in those countries would be negatively affected.

Commercializing our products and product candidates in foreign markets would subject us to additional risks and uncertainties, including:

- our inability to directly control commercial activities to the extent we are relying on third parties;
- the burden of complying with complex and changing foreign regulatory, tax, accounting and legal requirements, including the interpretation of contractual provisions governed by foreign laws in the event of a contract dispute;
- different medical practices and customs in foreign countries affecting acceptance in the marketplace;
- import or export licensing requirements;
- longer accounts receivable collection times;
- reduced protection of intellectual property rights, and the existence of additional potentially relevant third-party intellectual property rights, in some foreign countries; and
- foreign currency exchange rate fluctuations.

Foreign sales of our product candidates could also be adversely affected by the imposition of governmental controls, political and economic instability, trade restrictions and changes in tariffs. For example, Brexit has already and may continue to adversely affect European and/or worldwide regulatory conditions. Brexit could continue to lead to legal uncertainty and potentially divergent national laws and regulations in the EU and the UK, including those related to the pricing of prescription pharmaceuticals, as the UK determines which EU laws to replicate or replace, which could impair our ability to transact business in the EU and the UK in the future, if we elect to seek to commercialize any of our products there.

Risks Related to Our Intellectual Property Rights

If we are unable to adequately protect our proprietary technology or obtain and maintain issued patents that are sufficient to protect our product candidates, others could compete against us more directly, which would have a material adverse impact on our business, results of operations, financial condition and prospects.

We strive to protect and enhance the proprietary technologies that we believe are important to our business, including seeking patents intended to cover our products and compositions, their methods of use and any other inventions that are important to the development of our business. We may also rely on trade secrets to protect aspects of our business that are not amenable to, or that we do not consider appropriate for, patent protection.

Our success will depend significantly on our ability to obtain and maintain patent and other proprietary protection for commercially important technology, inventions and know-how related to our business; defend and enforce our patents, should they issue; preserve the confidentiality of our trade secrets; and operate without infringing the valid and enforceable patents and proprietary rights of third parties. We also rely on know-how, continuing technological innovation and in-licensing opportunities to develop, strengthen and maintain the proprietary position of our product candidates.

We cannot provide any assurances that any of our pending patent applications will mature into issued patents. For example, the U.S. Patent and Trademark Office, or U.S. PTO, has issued a final rejection against one of our patent applications claiming one of our proprietary $GABA_A$ positive allosteric modulator compounds, asserting a lack of novelty and non-obviousness. We are in the process of appealing the rejection and may not be successful in overturning the rejection.

We may be unable to obtain issued patents covering our proprietary compounds. We cannot provide any assurances that any of our issued patents will be enforceable, or include claims with a scope sufficient to protect our product candidates or otherwise provide any competitive advantage. For example, the issued patent and patent applications that provide coverage for ZULRESSO only cover particular formulations and particular methods of using such formulations to treat depressive disorders such as PPD and MDD. As a result, such issued patent and any patent that may issue from such patent applications, would not prevent third-party competitors from creating, making and marketing alternative formulations of brexanolone that fall outside the scope of the patent claims or from practicing alternative methods. Moreover, other parties have developed technologies that may be related or competitive to our approach, and may have filed or may file patent applications and may have received or may receive patents that may overlap or conflict with our patent applications, either by claiming the same methods or formulations or by claiming subject matter that could dominate our patent position. Such third-party patent positions may limit or even eliminate our ability to obtain patent protection for certain inventions.

The patent positions of biotechnology and pharmaceutical companies, including our patent position, involve complex legal and factual questions, and, therefore, the issuance, scope, validity and enforceability of any patent claims that we may obtain cannot be predicted with certainty. Patents, if issued, may be challenged, deemed unenforceable, invalidated, or circumvented. U.S. patents and patent applications may also be subject to interference proceedings, derivation proceedings, *ex parte* reexamination, or *inter partes* review proceedings, post-grant review proceedings, supplemental examination and challenges in district court. Patents may be subjected to opposition, post-grant review, or comparable proceedings lodged in various foreign, both national and regional, patent offices. These proceedings could result in either loss of the patent or denial of the patent application or loss or reduction in the scope of one or more of the claims of the patent or patent application. In addition, such proceedings may be costly.

For example, certain of our granted patents have, in the past, been opposed by third parties, and further of such proceedings in the future could result in revocation or amendment of our patents in such a way that they no longer cover our product candidates or competitive products. Thus, any patents, should they issue, that we may own or exclusively license may not provide any protection against competitors. Furthermore, an adverse decision in an interference proceeding or a derivation proceeding can result in a third party receiving the patent right sought by us, which in turn could affect our ability to develop, market or otherwise commercialize our product candidates. Furthermore, though a patent, if it were to issue, is presumed valid and enforceable, its issuance is not conclusive as to its validity or its enforceability, and it may not provide us with adequate proprietary protection or competitive advantages against competitors with similar products. Even if a patent issues, and is held to be valid and enforceable, competitors may be able to design around our patents, such as using pre-existing or newly developed technology. Other parties may develop and obtain patent protection for more effective technologies, designs or methods.

We also may not be able to prevent the unauthorized disclosure or use of our technical knowledge or trade secrets by consultants, vendors, former employees and current employees. The laws of some foreign countries do not protect our proprietary rights to the same extent as the laws of the U.S., and we may encounter significant problems in protecting our proprietary rights in these countries. If these developments were to occur, they could have a material adverse effect on our sales if any of our product candidates are approved in those countries. Our ability to enforce our patent rights depends on our ability to detect infringement. It is difficult to detect infringers who do not advertise the components that are used in their products. Moreover, it may be difficult or impossible to obtain evidence of infringement in a competitor's or potential competitor's product. Any litigation to enforce or defend our patent rights, even if we were to prevail, could be costly and time-consuming, and would divert the attention of our management and key personnel from our business operations. We may not prevail in any lawsuits that we initiate, and the damages or other remedies awarded if we were to prevail may not be commercially meaningful.

In addition, proceedings to enforce or defend our patents, if and when issued, could put our patents at risk of being invalidated, held unenforceable, or interpreted narrowly. Such proceedings could also provoke third parties to assert claims against us, including that some or all of the claims in one or more of our patents are invalid or otherwise unenforceable. If any of our patents, if and when issued, covering our product or product candidates is invalidated or found unenforceable, our financial position and results of operations may be materially and adversely impacted. In addition, if a court found that valid, enforceable patents held by third parties covered our product candidates, our financial position and results of operations may also be materially and adversely impacted.

The degree of future protection for our proprietary rights is uncertain, and we cannot ensure that:

- any of our pending patent applications, if issued as a patent, will include claims having a scope sufficient to protect our current product candidates or any other products or product candidates;
- any of our pending patent applications will issue as patents at all;
- we will be able to generate significant revenue from sales of ZURZUVAE or any of our product candidates, if successfully developed and approved, before our relevant patents expire;
- we were the first to make the inventions covered by each of our pending patent applications and any patents that may issue in the future;
- we were the first to file patent applications for these inventions;
- others will not develop similar or alternative technologies that do not infringe any patents that have been or may be issued to us;
- others will not use pre-existing technology to effectively compete against us;
- any of our patents, if issued or as issued, will provide us with a competitive advantage and be found ultimately to be valid and enforceable;
- any patents issued to us will provide a basis for an exclusive market for our commercially viable products, will provide us with any competitive advantages or will not be challenged by third parties;
- we will develop additional proprietary technologies or product candidates that are separately patentable; or

- that our commercial activities or products will not infringe upon the patents or proprietary rights of others.

We may rely upon unpatented trade secrets and depend on unpatented know-how and continuing technological innovation to develop and maintain our competitive position, which we seek to protect, in part, by confidentiality agreements with our employees and our CROs, collaborators and consultants. It is possible that technology relevant to our business will be independently developed by a person that is not a party to such an agreement. Furthermore, if the employees and consultants who are parties to these agreements breach or violate the terms of these agreements, we may not have adequate remedies for any such breach or violation, and we could lose our trade secrets through such breaches or violations. Further, our trade secrets could otherwise become known or be independently discovered by our competitors.

We may infringe the intellectual property rights of others, which may prevent or delay our product development efforts and stop us from commercializing or increase the costs of commercializing ZURZUVAE or any of our product candidates that we may successfully develop.

Our success will depend in part on our ability to operate without infringing the intellectual property and proprietary rights of third parties. We cannot assure you that our business, products and methods do not or will not infringe the patents or other intellectual property rights of third parties. The pharmaceutical industry is characterized by extensive litigation regarding patents and other intellectual property rights. Other parties may allege that our products or product candidates or the use of our technologies infringes patent claims or other intellectual property rights held by them or that we are employing their proprietary technology without authorization. As we continue to develop our current product candidates and commercialize ZURZUVAE, ZULRESSO (for the duration of its commercial availability), and any future products, competitors may claim that our technology infringes their intellectual property rights as part of business strategies designed to impede our successful commercialization. There may be third-party patents or patent applications with claims to materials, formulations, methods of manufacture or methods for treatment related to the use or manufacture of our product candidates. Because patent applications can take many years to issue, third parties may have currently pending patent applications which may later result in issued patents that our products or product candidates may infringe, or which such third parties claim are infringed by our technologies. The outcome of intellectual property litigation is subject to uncertainties that cannot be adequately quantified in advance. The coverage of patents is subject to interpretation by the courts, and the interpretation is not always uniform. If we are sued for patent infringement, we would need to demonstrate that our product candidates, products or methods either do not infringe the patent claims of the relevant patent or that the patent claims are invalid or unenforceable, and we may not be able to do this. Even if we are successful in these proceedings, we may incur substantial costs and the time and attention of our management and scientific personnel could be diverted in pursuing these proceedings, which could have a material adverse effect on us. In addition, we may not have sufficient resources to bring these actions to a successful conclusion.

Patent and other types of intellectual property litigation can involve complex factual and legal questions, and their outcome is uncertain. Patent litigation is costly and time-consuming. Any claim relating to intellectual property infringement that is successfully asserted against us may require us to pay substantial damages, including treble damages and attorney's fees if we are found to be willfully infringing another party's patents, for past use of the asserted intellectual property and royalties and other consideration going forward if we are forced to take a license. In addition, if any such claim were successfully asserted against us and we could not obtain such a license, we may be forced to stop or delay developing, manufacturing, selling or otherwise commercializing our product or product candidates. In the case of trademark claims, if we are found to be infringing, we may be required to redesign, or rename, some or all of our product candidates to avoid infringing the intellectual property rights of third parties, which may not be possible and, even if possible, could be costly and time-consuming. Even if we are successful in these proceedings, we may incur substantial costs and divert management time and attention in pursuing these proceedings, which could have a material adverse effect on us.

Any of these risks coming to fruition could have a material adverse effect on our business, results of operations, financial condition and prospects.

We may be subject to claims challenging the inventorship or ownership of our patents and other intellectual property.

We enter into confidentiality and intellectual property assignment agreements with our employees, consultants, CROs, outside scientific collaborators, and other advisors. These agreements generally provide that inventions conceived by the party in the course of rendering services to us will be our exclusive property. However, these agreements may not be honored and may not effectively assign intellectual property rights to us. For example, even if we have a consulting agreement in place with an academic advisor pursuant to which such academic advisor is required to assign to us any inventions developed in connection with providing services to us, such academic advisor may not have the right to assign such inventions to us, as it may conflict with his or her obligations to assign all such intellectual property to his or her employing institution or another party.

Most of our employees have also been previously employed at other biotechnology or pharmaceutical companies, including our competitors or potential competitors. We also engage advisors and consultants who are concurrently employed at universities or who perform services for other entities. We may be subject to claims that an employee, advisor or consultant performed work for us that conflicts with that person's obligations to a third party, such as an employer, and thus, that the third party has an ownership interest in the intellectual property arising out of work performed for us.

Litigation may be necessary to defend against these and other claims challenging inventorship or ownership. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights, such as exclusive ownership of, or right to use, valuable intellectual property. Such an outcome could have a material adverse effect on our business. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management and other employees, which could have a materially adverse effect on our business.

Obtaining and maintaining our patent protection depends on compliance with various procedural, document submission, 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 U.S. PTO and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other formalities and provisions during the patent process. There are situations in which noncompliance 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. In such an event, competitors might be able to enter the market earlier than would otherwise have been the case.

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.

Even if the patent applications we own or license are issued, competitors may infringe these patents. To counter infringement or unauthorized use, we may be required to file infringement claims, which can be expensive and time-consuming. In addition, in an infringement proceeding, a court may decide that a patent of ours or our licensors is not valid, is unenforceable and/or is not infringed, or may refuse to stop the other party from using the technology at issue on the grounds that our patents should be interpreted narrowly and do not cover the technology in question. An adverse result in any litigation or defense proceedings could put one or more of our patents at risk of being invalidated or interpreted narrowly and could put our patent applications at risk of not issuing.

Interference proceedings or derivation proceedings provoked by third parties or brought by us may be necessary to determine the priority of inventions with respect to our patents or patent applications or those of our licensors. An unfavorable outcome could require us to cease using the related technology or to attempt to license rights to it from the prevailing party. Our business could be harmed if the prevailing party does not offer us a license

on commercially reasonable terms. Our defense of litigation or interference proceedings may fail and, even if successful, may result in substantial costs and distract our management and other employees. We may not be able to prevent, alone or with our licensors, misappropriation of our intellectual property rights, particularly in countries where the laws may not protect those rights as fully as in the U.S.

Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. There could also be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could have a material adverse effect on the price of our common stock.

Issued patents covering our product or any of our product candidates could be found invalid or unenforceable if challenged in court.

If we or one of our collaborators or licensors initiated legal proceedings against a third party to enforce a patent, if and when issued, covering our product or any of our product candidates, the defendant could counterclaim that the patent covering our product or any of our product candidates is invalid and/or unenforceable. In patent litigation in the U.S., defendant counterclaims alleging invalidity and/or unenforceability are commonplace. Grounds for a validity challenge include alleged failures to meet any of several statutory and non-statutory requirements, including lack of novelty, obviousness, non-statutory obviousness type double patenting, lack of written description, or non-enablement. Grounds for unenforceability assertions include allegations that someone connected with prosecution of the patent withheld relevant information from the U.S. PTO, or made a misleading statement, during prosecution. Third parties may also raise similar claims before administrative bodies in the U.S. or abroad, even outside the context of litigation. Such mechanisms include re-examination, post-grant review, *ex parte* reexamination, *inter partes* review, derivation proceedings or interferences and equivalent proceedings in foreign jurisdictions, e.g., opposition or revocation proceedings. Such proceedings could result in revocation or amendment of our patents in such a way that they no longer cover our product candidates or competitive products. Certain of our granted patents have, in the past, been opposed by third parties, and further such proceedings in the future could result in revocation or amendment of our patents in such a way that they no longer cover our product candidates or competitive products. The outcome following legal assertions of invalidity and unenforceability is unpredictable. With respect to validity, for example, we cannot be certain that there is no invalidating prior art, of which we and the patent examiner were unaware during prosecution. If a defendant were to prevail on a legal assertion of invalidity and/or unenforceability, we would lose at least part, and perhaps all, of the patent protection on the applicable product or product candidates. Such a loss of patent protection could have a material adverse impact on our business.

We will not seek to protect our intellectual property rights in all jurisdictions throughout the world and we may not be able to adequately enforce our intellectual property rights even in the jurisdictions where we seek protection.

Filing patent applications and prosecuting and defending patents on product candidates in all countries and jurisdictions throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the U.S. could be less extensive than those in the U.S., assuming that rights are obtained in the U.S. 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 U.S. Consequently, we may not be able to prevent third parties from practicing our inventions in all countries outside the U.S., or from selling or importing products made using our inventions in and into the U.S. or other jurisdictions. The statutory deadlines for pursuing patent protection in individual foreign jurisdictions are based on the priority date of each of our patent applications.

Competitors may use our technologies in jurisdictions where we do not pursue patent protection. They may pursue and obtain their own patent protection to develop their own products. Further, they may export otherwise infringing products to territories where we have patent protection, but enforcement is not as strong as that in the U.S. These products may compete with our products and our patents or other intellectual property rights may not be effective or sufficient to prevent them from competing. Even if we pursue and obtain issued patents in particular

jurisdictions, our patent claims or other intellectual property rights may not be effective or sufficient to prevent third parties from so competing.

The laws of some foreign countries do not protect intellectual property rights to the same extent as the laws of the U.S. Many companies have encountered significant problems in protecting and defending intellectual property rights in certain foreign jurisdictions. The legal systems of some countries, particularly developing countries, do not favor the enforcement of patents and other intellectual property protection, especially those relating to biotechnology and pharmaceuticals. For example, a 2024 report from the Office of the U.S. Trade Representative identified a number of countries, including India and China, where challenges to the procurement and enforcement of patent rights have been reported. Several countries, including India and China, have been listed in the report every year since 1989. This could make it difficult for us to stop the infringement of our patents, if obtained, or the misappropriation of our other intellectual property rights in such jurisdictions. Many foreign countries have compulsory licensing laws under which a patent owner must grant licenses to third parties. In addition, many countries limit the enforceability of patents against third parties, including government agencies or government contractors. In these countries, patents may provide limited or no benefit. Patent protection must ultimately be sought on a country-by-country basis, which is an expensive and time-consuming process with uncertain outcomes. Accordingly, we may choose not to seek patent protection in certain countries, and we will not have the benefit of patent protection in such countries.

Furthermore, proceedings to enforce our patent rights in foreign jurisdictions could, among other things, 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, could put 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 intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license.

For ZULRESSO and certain of our product candidates, we are dependent on licensed intellectual property. If we were to lose our rights to licensed intellectual property, we may not be able to continue developing or commercializing certain of our products or product candidates, if approved. If we breach any of the agreements under which we license the use, development and commercialization rights to our products, product candidates or technology from third parties or, in certain cases, we fail to meet certain development deadlines, we could lose license rights that are important to our business.

We are a party to a number of license agreements under which we are granted rights to intellectual property that are important to our business and we expect that we may need to enter into additional license agreements in the future. Our existing license agreements impose, and we expect that future license agreements will impose on us, various development, regulatory and/or commercial diligence obligations, payment of milestones and/or royalties and other obligations. If we fail to comply with our obligations under these agreements, or we are subject to a bankruptcy, the licensor may have the right to terminate the license, in which event we would not be able to market products covered by the license. Our business could suffer, for example, if any current or future licenses terminate, if the licensors fail to abide by the terms of the license, if the licensed patents or other rights are found to be invalid or unenforceable, or if we are unable to enter into necessary licenses on acceptable terms.

As we have done previously, we may need to obtain licenses from third parties to advance our research or allow commercialization of our product candidates, and we cannot provide any assurances that third-party patents do not exist that might be enforced against our current product candidates or future products in the absence of such a license. We may fail to obtain any of these licenses on commercially reasonable terms, if at all. Even if we are able to obtain a license, it may be non-exclusive, thereby giving our competitors access to the same technologies licensed to us. If we fail to obtain a license, we may be required to expend significant time and resources to develop or license replacement technology. If we are unable to do so, we may be unable to develop or commercialize the affected product candidates, which could materially harm our business and the third parties owning such intellectual property rights could seek either an injunction prohibiting our sales, or, with respect to our sales, an obligation on our part to pay royalties and/or other forms of compensation.

Licensing of intellectual property is of critical importance to our business and involves complex legal, business and scientific issues. Disputes may arise between us and our licensors regarding intellectual property subject to a license agreement, including:

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

If disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements on acceptable terms, we may be unable to successfully commercialize the relevant product or to successfully develop and commercialize the affected product candidates.

We have entered into several licenses to support our various programs. We may enter into additional licenses to third-party intellectual property that are necessary or useful to our business. Our current licenses and any future licenses that we may enter into impose various royalty payment, milestone, and other obligations on us. For example, the licensor may retain control over patent prosecution and maintenance under a license agreement, in which case, we may not be able to adequately influence patent prosecution or prevent inadvertent lapses of coverage due to failure to pay maintenance fees. If we fail to comply with any of our obligations under a current or future license agreement, the licensor may allege that we have breached our license agreement and may accordingly seek to terminate our license. In addition, future licensors may decide to terminate their licenses with us at will. Termination of any of our current or future licenses could result in our loss of the right to use the licensed intellectual property, which could materially adversely affect our ability to develop a product candidate or commercialize a product, as well as harm our competitive business position and our business prospects.

In addition, if our licensors fail to abide by the terms of the license, if the licensors fail to prevent infringement by third parties, if the licensed patents or other rights are found to be invalid or unenforceable, or if we are unable to enter into necessary licenses on acceptable terms, our business could materially suffer.

Some intellectual property which we have licensed, or may in the future license, may have been discovered through government funded programs and thus may be subject to federal regulations such as "march-in" rights, certain reporting requirements, and a preference for U.S. industry. Compliance with such regulations may limit our exclusive rights, subject us to expenditure of resources with respect to reporting requirements and limit our ability to contract with non-U.S. manufacturers.

Some of the intellectual property rights we have licensed, or may in the future license, may have been generated through the use of U.S. government funding and may therefore be subject to certain federal regulations. For example, some of the intellectual property rights licensed to us under the license agreement with The Regents of the University of California may have been generated using U.S. government funds. As a result, the U.S. government may have certain rights to intellectual property embodied in our current product or current or future product candidates pursuant to the Bayh-Dole Act of 1980, or Bayh-Dole Act. These U.S. government rights in certain inventions developed under a government-funded program include a non-exclusive, non-transferable, irrevocable worldwide license to use inventions for any governmental purpose. In addition, the U.S. government has the right to require us to grant exclusive, partially exclusive, or non-exclusive licenses to any of these inventions to a third party if the government determines that: (i) adequate steps have not been taken to commercialize the invention; (ii) government action is necessary to meet public health or safety needs; or (iii) government action is necessary to meet requirements for public use under federal regulations (also referred to as "march-in rights"). The U.S. government

also has the right to take title to these inventions if we fail, or the applicable licensor fails, to disclose the invention to the government and fail to file an application to register the intellectual property within specified time limits. In addition, the U.S. government may acquire title to these inventions in any country in which a patent application is not filed within specified time limits. Intellectual property generated under a government funded program is also subject to certain reporting requirements, compliance with which may require us, or the applicable licensor, to expend substantial resources. In addition, the U.S. government requires that any products embodying the subject invention or produced through the use of the subject invention be manufactured substantially in the U.S. The manufacturing preference requirement can be waived if the owner of the intellectual property can show that reasonable but unsuccessful efforts have been made to grant licenses on similar terms to potential licensees that would be likely to manufacture substantially in the U.S. or that under the circumstances domestic manufacture is not commercially feasible. This preference for U.S. manufacturers may limit our ability to contract with non-U.S. product manufacturers for products covered by such intellectual property.

If we enter into future arrangements involving government funding, and we discover compounds or product candidates as a result of such funding, intellectual property rights to such discoveries may be subject to the applicable provisions of the Bayh-Dole Act.

If we do not obtain new chemical entity or other types of marketing and data exclusivity for our product candidates and if we do not obtain additional protection under the Drug Price Competition and Patent Term Restoration Act of 1984, commonly referred to as the Hatch-Waxman Act, and similar foreign legislation by extending the patent terms of our product candidates, our business may be materially harmed.

Marketing exclusivity provisions under the Federal Food, Drug, and Cosmetic Act, or FDCA, can delay the submission or the approval of certain marketing applications by other companies for a product with the same active moiety as a product we sell or may in the future sell. The FDCA provides a five-year period of non-patent marketing exclusivity within the U.S. to the first applicant to obtain approval of an NDA for a new chemical entity, or NCE. During the exclusivity period, the FDA may not accept for review an abbreviated new drug application, or ANDA, or a 505(b)(2) NDA submitted by another company for another drug based on the same active moiety, regardless of whether the drug is intended for the same indication as the original innovator drug or for another indication, where the applicant does not own or have a legal right of reference to all the data required for approval. However, an application may be submitted after four years if it contains a certification of patent invalidity or non-infringement to one of the patents listed with the FDA by the innovator NDA holder. The FDCA also provides three years of marketing exclusivity for a full NDA, or supplement to an existing NDA, if new clinical investigations, other than bioavailability studies, that were conducted or sponsored by the applicant are deemed by the FDA to be essential to the approval of the application, for example new indications, dosages or strengths of an existing drug. This three-year exclusivity covers only the modification for which the drug received approval on the basis of the new clinical investigations and does not prohibit the FDA from approving ANDAs for drugs containing the active agent for the original indication or condition of use. We have obtained NCE exclusivity for brexanolone and zuranolone and plan to seek NCE exclusivity for our current and future product candidates. The NCE exclusivity for brexanolone expired in June 2024, five years following approval of ZULRESSO. Lipocine, Inc. is currently developing LPCN 1154, an oral formulation of brexanolone, under the streamlined 505(b)(2) regulatory pathway, which allows for potential approval of an abbreviated NDA by the FDA. Lipocine has announced that it plans to seek to show bioequivalence of LPCN 1154 to brexanolone and reference ZULRESSO data. There is no guarantee that our product candidates will qualify for marketing or data exclusivity under these provisions or that such exclusivity for any of our products will alone be sufficient for our business. The applicable five-year and three-year exclusivity periods of NCE or data exclusivity under the FDCA will not delay the submission or approval of a full NDA.

Depending upon the timing, duration and specifics of FDA marketing approval of our product candidates, one or more of the U.S. patents we own or license may be eligible for limited patent term restoration in the future under the Hatch-Waxman Act. The Hatch-Waxman Act permits a patent restoration term of up to five years as compensation for patent term lost during product development and the FDA regulatory review process. Even if, at the relevant time, we have a valid issued patent covering our product, we may not be granted an extension if we were to fail to satisfy applicable requirements. Moreover, the applicable time period or the scope of patent protection afforded could be less than we request. If we are unable to obtain patent term extension or restoration or the term of

any such extension is less than we request, and we do not have any other exclusivity, our competitors may obtain approval of competing products following our patent expiration and our business, financial condition or results of operations could be adversely affected.

Changes in U.S. patent law could diminish the value of patents in general, thereby impairing our ability to protect our products.

Our success is heavily dependent on intellectual property, particularly patents. Obtaining and enforcing patents in the biotechnology industry involves both technological and legal complexity, and is therefore costly, time-consuming and inherently uncertain. In addition, the U.S. has recently enacted wide-ranging patent reform legislation: the Leahy-Smith America Invents Act, referred to as the America Invents Act. The America Invents 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. It is not yet clear what, if any, impact the America Invents Act will have on the operation of our business. However, the America Invents Act and its implementation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of any patents that may issue from our patent applications, all of which could have a material adverse effect on our business and financial condition.

In addition, U.S. Supreme Court rulings have narrowed the scope of patent protection available in certain circumstances and weakened the rights of patent owners in certain situations. For example, in March 2012, in *Mayo Collaborative Services, DBA Mayo Medical Laboratories, et al. v. Prometheus Laboratories, Inc.*, the U.S. Supreme Court held that several claims drawn to measuring drug metabolite levels from patient samples and correlating them to drug doses were not patentable subject matter. The decision appears to impact diagnostics patents that merely apply a law of nature via a series of routine steps and it has created uncertainty around the ability to obtain patent protection for certain inventions. Additionally, in June 2013, in *Association for Molecular Pathology v. Myriad Genetics, Inc.*, the U.S. Supreme Court held that claims to isolated genomic DNA are not patentable, but claims to complementary DNA molecules are patent eligible because they are not a natural product. In June 2014, in *Alice Corporation Pty. Ltd. v. CLS Bank International, et al.*, a case involving patent claims directed to a method for mitigating settlement risk, the U.S. Supreme Court held that the patent eligibility of claims directed to abstract ideas, products of nature, and laws of nature should be determined using the same framework set forth in *Prometheus*. The U.S. PTO has issued a set of guidelines setting forth procedures for determining subject matter eligibility of claims directed to abstract ideas, products of nature, and laws of nature in line with the *Prometheus*, *Myriad*, and *Alice* decisions. The guidance does not limit the application of *Myriad* to DNA but, rather, applies the decision to other natural products. The full impact of these decisions on our business is not yet known.

In May 2023, the Supreme Court, in *Amgen Inc. v. Sanofi, et al.*, held that claims to a functionally-defined genus of monoclonal antibodies were invalid due to a lack of enablement, as they failed to provide adequate guidance for making and using the claimed antibodies. The Supreme Court noted that the general principle remains that all claims must be enabled to their "full scope" and that broader claims require more enablement.

In addition to increasing uncertainty with regard to our ability to obtain future patents, this combination of events has created uncertainty with respect to the value of patents, once obtained. Depending on these and other decisions by the U.S. Congress, the federal courts and the U.S. PTO, the laws and regulations governing patents could change in unpredictable ways that would weaken our ability to obtain new patents or to enforce any patents that may issue in the future.

With passage of the CREATES Act, we are exposed to possible litigation and damages by competitors. In addition, existing statutes, including the CREATES Act, and proposed legislation in Congress, if passed into law, could limit the patent exclusivity on our products or facilitate earlier entry of generic competition.

Under the CREATES Act, legislation intended to facilitate the development of generic and biosimilar products, we are exposed to possible litigation and damages by competitors who may claim that we are not providing sufficient quantities of our approved products on commercially reasonable, market-based terms for testing in support of their ANDAs and 505(b)(2) applications. Such litigation would subject us to litigation costs, damages and reputational harm, which could lead to lower revenues. Increased risk of generic competition with ZURZUVAE and any of our

product candidates, if approved, including as a result of the CREATES Act, could impact our ability to maximize product revenue.

In addition, members of Congress have proposed numerous legislative initiatives aimed at limiting the patent exclusivity on drug products or facilitating earlier entry of generic versions of approved drugs. Examples of bills that have been proposed include a bill that, if passed, would create a presumption of invalidity for patents beyond the first patent covering a drug product thus shifting the burden to the innovator to prove that these subsequent patents are separately patentable inventions, distinct from the first patent; a bill that, if passed, would empower the Federal Trade Commission to investigate whether large patent portfolios covering a drug product constitute an anti-competitive practice and to file antitrust lawsuits in such instances; and a bill that, if passed, would limit the availability of a 30-month stay on approval by the FDA of a generic version of a drug to only those instances where the ANDA litigation involves a composition of matter patent claiming the drug substance. Such legislation, if passed into law, could adversely affect ZURZUVAE or any future products or result in earlier entry into the market of generic versions of our drugs.

Risks Related to our Industry

Healthcare regulations aimed at reducing healthcare costs may have a material adverse effect on our business or results of operations.

There have been, and likely will continue to be, legislation and legislative, administrative and regulatory proposals in the U.S., both at the federal and state level, and in many foreign jurisdictions, aimed at reducing healthcare costs. The implementation of cost containment measures, drug pricing controls or other reforms could have an adverse effect on our revenue from ZURZUVAE or from the sales of any other products that are successfully developed and approved, and may limit our ability to achieve profitability.

For example, the ACA substantially changed the way healthcare is financed by both governmental and private insurers, and significantly impacted the U.S. pharmaceutical industry. The ACA, among other things, subjects biological products to potential competition by lower-cost biosimilars, provided a new methodology by which rebates owed by manufacturers under the Medicaid Drug Rebate Program are calculated for drugs that are inhaled, infused, instilled, implanted or injected, increased the minimum Medicaid rebates owed by manufacturers under the Medicaid Drug Rebate Program and extended the rebate program to individuals enrolled in Medicaid managed care organizations, established annual fees and taxes on manufacturers of certain branded prescription drugs, and created a new Medicare Part D coverage gap discount program, in which manufacturers must agree to offer 70% (pursuant to the Bipartisan Budget Act of 2018, effective as of 2019) point-of-sale discounts off negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for the manufacturer's outpatient drugs to be covered under Medicare Part D (subsequently modified by the Inflation Reduction Act of 2022, or IRA, as discussed below).

The Budget Control Act of 2011, among other things, created measures for spending reductions by Congress. A Joint Select Committee on Deficit Reduction, tasked with recommending a targeted deficit reduction of at least $1.2 trillion for the years 2013 through 2021, was unable to reach required goals, thereby triggering the legislation's automatic reduction to several government programs. These changes included aggregate reductions to Medicare payments to providers of up to 2% per fiscal year, which went into effect in April 2013 and will remain in effect through 2031. Pursuant to the Coronavirus Aid, Relief and Economic Security Act and subsequent legislation, these Medicare sequester reductions were reduced and suspended, with the current 2% rate of sequestration resuming in July 2022. The rate of sequestration is currently set at 2%, will increase to 2.25% for the first half of fiscal year 2030, to 3% for the second half of fiscal year 2030, and to 4% for the remainder of the sequestration period that lasts through the first six months of fiscal year 2031. These and other laws may result in additional reductions in Medicare and other healthcare funding and otherwise affect the prices we may obtain for any of our products or product candidates for which we may obtain regulatory approval or the frequency with which any such product is prescribed or used.

Certain provisions of the ACA have been subject to judicial challenges as well as efforts to modify them or to alter their interpretation or implementation. For example, the U.S. Tax Cuts and Jobs Act of 2017 included a provision repealing the tax-based shared responsibility payment imposed by the ACA on certain individuals who fail to maintain qualifying health coverage for all or part of a year that is commonly referred to as the "individual mandate." We expect that the ACA, its implementation, efforts to challenge or modify the ACA or its implementing regulations, or portions thereof, and other healthcare reform measures that may be adopted in the future, could have a material adverse effect on our industry generally and on our ability to commercialize our products and product candidates, if approved.

There has been increasing legislative and enforcement interest in the U.S. with respect to drug pricing practices. Specifically, there have been several U.S. Congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to drug pricing, reduce the cost of prescription drugs, including under Medicare and Medicaid, which may potentially impact negotiations on pricing and discounts with commercial payors, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for drugs. There have been multiple Congressional and administrative efforts to address drug pricing, including the IRA. It is unclear whether any other legislation or public policy will come to pass, and if so, what effect it could have on our business.

The IRA has implications for Medicare Part D, which is a program available to individuals who are entitled to Medicare Part A or enrolled in Medicare Part B to give them the option of paying a monthly premium for certain outpatient prescription drug coverage, as well as Medicare Part B. Among other things, the IRA requires manufacturers of certain drugs to engage in price negotiations with Medicare, with negotiated prices subject to a cap and first set to take effect in 2026; imposes rebates under Medicare Part B and Medicare Part D to penalize price increases that outpace inflation (the first Part B inflation rebate period is in the first quarter of 2023; the first Part D inflation rebate period is the fourth quarter of 2022 through the third quarter of 2023); and replaces the Part D coverage gap discount program with a new Part D discounting program (beginning in 2025). The IRA permits the Secretary of HHS to implement many of these provisions through guidance, as opposed to regulation, for the initial years of these programs. Manufacturers may be subject to civil monetary penalties for certain violations of the negotiation and inflation rebate provisions and an excise tax during a noncompliance period under the negotiation program.

Specifically, with respect to price negotiations, Congress authorized CMS to negotiate lower prices for certain costly single-source drug and biologic products that do not have competing generics or biosimilars and are reimbursed under Medicare Part B and Part D. CMS may negotiate prices for ten high-cost drugs paid for by Medicare Part D starting in 2026, followed by 15 Part D drugs in 2027, 15 Part B or Part D drugs in 2028, and 20 Part B or Part D drugs in 2029 and beyond. Drugs may be selected for negotiation only once they are at least seven years post-approval (such that they will be nine years post-approval when first subject to the maximum negotiated price) and biologics may be selected for negotiation 11 years post approval (such that they will be 13 years post-approval when first subject to the maximum negotiated price). It does not apply to drugs and biologics that have been approved for a single rare disease or condition. We could be at risk of government action if, in the future, any of our products are the subject of Medicare price negotiations. In that event, the outcome of the Medicare price negotiations, which will be made publicly available, may also impact negotiations on pricing and discounts with commercial payors.

These risks as to pricing may further heighten the risk that we would not be able to achieve the expected return on our drug products or full value of our patents protecting our products if the pricing of any of our products are the subject of Medicare price negotiations. As a result, these risks may also impact the development decisions we make with respect to our products and product candidates, including zuranolone.

Further, the IRA subjects drug manufacturers to civil monetary penalties and a potential excise tax for failing to comply with the IRA by offering a price that is not equal to or less than the negotiated "maximum fair price" under the law or for taking price increases that exceed inflation. The IRA also requires manufacturers to pay rebates for drugs reimbursed under Medicare Part D whose price increases exceed inflation and caps Medicare out-of-pocket drug costs beginning in 2025, at $2,000 a year, subject to an adjustment for inflation thereafter. Drug manufacturers

may also be subject to civil monetary penalties with respect to their compliance with these programs. In addition, the IRA potentially raises risks related to individuals participating in a Medicare Part D prescription drug plan who may experience a gap in coverage if they required coverage above their initial annual coverage limit before they reached the higher threshold, or "catastrophic period" of the plan. Individuals requiring services exceeding the initial annual coverage limit and below the catastrophic period, must pay 100% of the cost of their prescriptions until they reach the catastrophic period. Among other things, the IRA contains many provisions aimed at reducing this financial burden on individuals by eliminating the coverage gap starting in 2025, reducing the co-insurance and co-payment costs, expanding eligibility for lower income subsidy plans, and imposing price caps on annual out-of-pocket expenses, each of which could have potential pricing and reporting implications.

It is unclear how the IRA will be implemented. Several pharmaceutical companies, as well as the U.S. Chamber of Commerce, and the Pharmaceutical Research and Manufacturers of America have filed lawsuits against HHS and CMS asserting that, among other things, the IRA's drug price negotiation program for Medicare constitutes an uncompensated taking in violation of the Fifth Amendment of the U.S. Constitution. We expect that litigation involving these and other provisions of the IRA will continue, with unpredictable and uncertain results. We further cannot predict with certainty what impact the IRA or any other federal or state health reforms will have on us, but such changes could impose new or more stringent regulatory requirements on our activities or result in reduced reimbursement for our products, any of which could adversely affect our business, results of operations and financial condition. There may be additional Congressional and administrative efforts to address drug pricing.

At the state level, legislatures have increasingly passed legislation and agencies have implemented regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and price transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing.

There have been, and likely will continue to be, legislative and regulatory proposals at the foreign, federal and state levels directed at containing or lowering the cost of healthcare or limiting exclusivity periods for pharmaceutical products. We cannot predict the initiatives that may be adopted in the future. The continuing efforts of the government, insurance companies, managed care organizations and other payors of healthcare services to contain or reduce costs of healthcare and/or impose price controls may adversely affect:

- the demand for ZURZUVAE or any of our product candidates, if approved;
- our ability to receive or set a price that we believe is fair for our products;
- our ability to generate revenue and achieve or maintain profitability;
- the amount of taxes that we are required to pay; and
- the availability of capital.

We expect that the measures discussed above, as well as other healthcare reform measures that may be adopted in the future, may result in additional reductions in Medicare and other healthcare funding, more rigorous coverage criteria, lower reimbursement, and new payment methodologies. This could lower the price that we receive for any approved product. Any denial in coverage or reduction in reimbursement from Medicare or other government-funded programs may result in a similar denial or reduction in payments from private payors, which may prevent us from being able to generate sufficient revenue from sales of ZURZUVAE, successfully commercialize any other products if approved in the future, and achieve profitability.

Our internal computer systems or networks, or cloud platforms or those of our collaborators, our third-party CROs or our other contractors, consultants or service providers, may fail or suffer security breaches, which could result in a material disruption of our development programs, compromise personal or sensitive information related to our business, or cause us to incur significant liabilities which could adversely impact our business.

We are increasingly dependent upon information technology systems, infrastructure and data to operate our business, and despite the implementation of security measures, our internal computer systems and those of our

collaborators, our third-party CROs and our other contractors, consultants and service providers are vulnerable to cyber security threats, including damage from unauthorized access, theft, natural disasters, terrorism, war, telecommunication and electrical failures, and system malfunction, or from cyber-attacks by malicious third parties (including the deployment of harmful malware, ransomware, viruses, worms, denial-of-service attacks, supply chain attacks, social engineering schemes and other means to affect service reliability and threaten the confidentiality, integrity and availability of information). In addition, cyber-attacks against us or against third parties we do business with could also utilize phishing attempts, email fraud, or attempts to cause payments, confidential or sensitive information, or other data to be transmitted to an unintended recipient, and could include the use of artificial intelligence, or AI, and machine learning to launch more automated, targeted and coordinated attacks. If such an event were to occur and cause interruptions in our operations, it could result in a material disruption of our programs or cause us to have liability for disclosure of personal information of our customers. For example, the loss of clinical trial data for our product candidates could result in delays in our regulatory submission and approval efforts and significantly increase our costs to recover or reproduce the data, if possible. To the extent that any disruption, disaster or security breach results in a loss of or damage to our data or applications or other data or applications relating to our technology or product candidates, or inappropriate disclosure of confidential or proprietary information, we could incur liabilities and the further development of our product candidates could be delayed or prevented.

Moreover, as AI and machine learning technologies evolve and their use increases, we will need to invest in resources to ensure appropriate development and use of any generative AI, or similar technologies, and to develop internal compliance policies and procedures addressing this use, including in response to laws and regulations that may be adopted or interpreted to address these technologies. Our potential future use and/or development of AI, if applicable, could potentially place us under increased regulatory oversight, exacerbate our risks related to litigation and intellectual property, and augment our existing obligations regarding information security.

We could be required to expend significant amounts of money and other resources to respond to these threats or breaches and to repair or replace information systems or networks or cloud platforms. We also could suffer financial loss or the loss of valuable confidential information. In addition, we could be subject to regulatory actions and/or claims made by individuals and groups in private litigation involving privacy issues related to data collection and use practices and other data privacy laws and regulations, including claims for misuse or inappropriate disclosure of data, as well as unfair or deceptive acts or practices in violation of Section 5(a) of the Federal Trade Commission Act, or the FTC Act. The Federal Trade Commission, or the FTC, expects a company's data security measures to be reasonable and appropriate in light of the sensitivity and volume of consumer information it holds, the size and complexity of its business, and the cost of available tools to improve security and reduce vulnerabilities. Individually identifiable health information is considered sensitive data that merits stronger safeguards. The guidance of the FTC for appropriately securing consumers' personal information is similar to what is required by the HIPAA Security Rule, which establishes national standards for covered entities to protect individuals' electronic personal health information. The HIPAA Security Rule requires covered entities to have appropriate administrative, physical and technical safeguards to help ensure the confidentiality, integrity, and security of electronic protected health information. With respect to privacy, the FTC also sets expectations that companies honor the privacy promises made to individuals about how the company handles consumers' personal information. Any failure to honor promises, such as the statements made in a privacy policy or on a website, may also constitute unfair or deceptive acts or practices in violation of the FTC Act. The FTC is also actively expanding its authority under the "unfairness" prong of Section 5 of the FTC Act through its recent enforcement actions and is especially focused on health data. While we do not intend to engage in unfair or deceptive acts or practices, the FTC has the power to enforce promises as it interprets them, and events that we cannot fully control, such as data breaches, may result in FTC enforcement. Enforcement by the FTC under the FTC Act can result in civil penalties or enforcement actions.

Although we develop and maintain systems and controls designed to prevent these events from occurring and we have a process to identify and mitigate threats, the development and maintenance of these systems, controls and processes are costly and require ongoing monitoring and updating as technologies change and efforts to overcome security measures become increasingly sophisticated. Moreover, we cannot guarantee that our, or our third-party CROs' or our other contractors', consultants' or service providers' security measures will be sufficient to prevent data loss and other security breaches. Despite our efforts, the possibility of these events occurring cannot be

eliminated entirely and there can be no assurance that any measures we take will prevent cyber-attacks or security breaches that could adversely affect our business, including security breaches that may remain undetected for extended periods of time, which can substantially increase the potential for a material adverse impact resulting from the breach.

Risks Related to Our Financial Position and Need for Capital

We are a biopharmaceutical company that has not generated significant revenue to date. We have incurred significant operating losses since our inception, and anticipate that we will incur losses for the foreseeable future.

We are a biopharmaceutical company with only two approved products, and only began generating revenue from product sales in the second quarter of 2019. Biopharmaceutical product development and commercialization are highly speculative undertakings and involve a substantial degree of risk.

We have funded our operations to date primarily through proceeds from sales of common stock, including the sale of stock to Biogen MA Inc., or BIMA; redeemable convertible preferred stock prior to our initial public offering and, to a lesser extent, the issuance of convertible notes. From our inception through September 30, 2024, we had received aggregate net proceeds of $2.8 billion from such transactions. We also received $1.0 billion in upfront payments under our collaborations with Biogen and Shionogi and achieved a milestone under the collaboration agreement with Biogen totaling $75.0 million for the first commercial sale of ZURZUVAE for the treatment of women with PPD in the U.S. in the fourth quarter of 2023, as a result of the first sale of ZURZUVAE to a distributor, and received the milestone payment in January 2024. As of September 30, 2024, our cash, cash equivalents and marketable securities were $569.2 million. We have incurred net losses in each year since our inception, except for net income of $606.1 million for the year ended December 31, 2020, reflecting revenue recognized under a collaboration and license agreement with Biogen. Our net loss was $304.9 million for the nine months ended September 30, 2024, and our accumulated deficit was $2.9 billion as of September 30, 2024.

Substantially all of our operating losses have resulted from costs incurred in connection with our research and development programs and from selling, general and administrative costs associated with our operations. We expect to incur increasing levels of operating losses over the next several years and for the foreseeable future. Our prior losses, combined with expected future losses, have had, and will continue to have, an adverse effect on our stockholders' equity and working capital. Although we expect that our operating expenses will decrease in 2025 as compared to 2024 as a result of our October 2024 reorganization, we expect to continue to incur significant operating expenses, particularly as we and our collaboration partner Biogen continue to commercialize ZURZUVAE in the U.S. for the treatment of women with PPD and as we continue work to advance ongoing and future product candidates. We expect these costs will include the costs and expenses associated with: our sales and marketing activities; advancing ongoing clinical trials for dalzanemdor and potential further development of dalzanemdor if the DIMENSION Study is successful; conducting clinical trials of current and future product candidates; continuing certain research activities; outsourced manufacturing; pursuing potential business development activities; and the impact of future decisions and activities. If we receive marketing approval of any current or future product candidate beyond ZURZUVAE and ZULRESSO for the treatment of PPD, we will incur significant additional sales, marketing and manufacturing expenses. We incur significant legal and accounting costs associated with operating as a public company. We expect to continue to incur additional significant and operating losses for the foreseeable future. Because of the numerous risks and uncertainties associated with developing pharmaceutical products, we are unable to predict the extent of any future losses or when we will become profitable, if at all. Even if we do become profitable, we may not be able to sustain or increase our profitability on a quarterly or annual basis.

Our ability to become profitable depends upon our ability to generate product revenue and/or revenue from our collaborations on a sustained basis. We began to generate revenue from product sales in the second quarter of 2019 in conjunction with launch of our product ZULRESSO, which commenced in June 2019. We plan to discontinue commercial availability for ZULRESSO in the U.S. on December 31, 2024, after which we do not expect to generate additional revenue from ZULRESSO. We do not expect to generate significant revenue from ZULRESSO in fourth quarter of 2024. In addition, we began to generate revenue from sales of ZURZUVAE in December 2023. Our ability

to generate significant product and collaboration revenues from our current products and any future approved product depends on a number of factors, including, but not limited to:

- our ability to successfully commercialize, with Biogen, ZURZUVAE for the treatment of women with PPD in the U.S., including our ability to achieve and maintain market acceptance and satisfactory reimbursement of such product in the medical community, with patients and with third-party payors;
- our ability to successfully complete all ongoing and future clinical trials and non-clinical studies required to file for, and obtain, U.S. and foreign marketing approval for our current or future product candidates; and our ability to file for and receive marketing approval to commercialize our product candidates, if successfully developed; and
- with respect to any product candidate potentially approved in the future, our ability, alone or with collaborators, to commercialize the product by developing and effectively deploying a sales force, and to achieve market acceptance and satisfactory reimbursement of such product in the medical community, with patients and with third-party payors.

If we are unable to generate significant product revenue and/or revenue from our collaborations on a sustained basis, we will not become profitable, and may be unable to continue operations without continued funding.

We will need to raise additional funding, which may not be available on acceptable terms, or at all. Failure to obtain this necessary capital when needed may force us to delay, limit or terminate our product development efforts or other operations. Even if we believe we have sufficient funds for our current or future operating plans, we may seek additional capital if market conditions are favorable or in light of other strategic considerations. To the extent that we raise additional capital through the sale of common stock or securities convertible or exchangeable into common stock, the ownership interest of our stockholders in our company will be diluted.

We are currently commercializing ZURZUVAE for the treatment of women with PPD in the U.S. We also currently commercialize ZULRESSO in PPD, but plan to discontinue commercial availability of ZULRESSO in the U.S. on December 31, 2024, and are advancing our product candidates, including dalzanemdor, through non-clinical and clinical development. Commercializing products and developing additional small molecule products are expensive. In October 2024 and August 2023, we implemented strategic corporate reorganizations to support goals for long-term business growth. Although we expect that our operating expenses will decrease in 2025 as compared to 2024 as a result of our October 2024 reorganization, we expect to continue to incur significant operating expenses, particularly as we and our collaboration partner Biogen continue commercialization of ZURZUVAE in the U.S. for the treatment of women with PPD. Our anticipated operating expenses include costs associated with: sales and marketing activities; manufacturing; ongoing clinical trials for dalzanemdor and potential further development of dalzanemdor, if the DIMENSION Study is successful; clinical trials of our current and future product candidates; pursuing potential business development activities; continuation of certain research activities; and the impact of future decisions and activities. We may seek additional capital in the future to fund operating needs. Our cash needs will increase further if we choose to pursue additional indications and/or geographies for our product candidates, conduct additional clinical trials for indications we are already pursuing beyond the anticipated trials, identify new potential opportunities or otherwise expand our activities more rapidly than we presently anticipate.

As of September 30, 2024, our cash, cash equivalents and marketable securities were $569.2 million. Based on our current operating plan, we anticipate that our existing cash, cash equivalents and marketable securities as of September 30, 2024, anticipated funding from our ongoing collaborations and estimated revenues, excluding any potential savings resulting from our October 2024 reorganization, will support our operations into 2026. We do not anticipate receipt of any additional milestone payments from collaborations in the remainder of 2024. Our current operating plan does not contemplate other development activities we may pursue or that all of the currently planned activities will proceed at the same pace, or that all of the activities will be fully initiated or completed during that time. We may not achieve milestones tied to cash payments to us from our collaboration partners on the timelines we expect or at all or generate anticipated revenues from sales of ZURZUVAE for the treatment of women with PPD at the levels or on the timelines we expect. We may use available capital resources sooner than we expect under our current operating plan, including as a result of unexpected events or changes in plans. We also may not achieve cost

savings from our October 2024 reorganization at the levels we expect. In addition, our operating plan may change. We may choose to seek additional funds through equity or debt financings, government or other third-party funding, marketing and distribution arrangements and other collaborations, strategic alliances, licensing or royalty arrangements and arrangements involving other rights or a combination of these or other approaches. In any event, we anticipate we will require additional capital to fund our operations. If current or future economic conditions impact capital markets for an extended period, or if our business prospects are impaired or the capital markets disrupted for any other reason, additional capital may not be available to us on acceptable terms, or at all. Even if we believe we have sufficient funds for our current or future operating plans, we may seek additional capital if we believe market conditions are favorable or in light of other strategic considerations.

We cannot guarantee that future financing will be available in sufficient amounts or on terms acceptable to us, if at all. Any time we encounter a major setback in our development or regulatory activities, such as the CRL issued by the FDA to our NDA for zuranolone for the treatment of MDD, or in our commercialization efforts, or receive negative data from a key clinical program, such as the announcement of negative results from the LIGHTWAVE Study in October 2024, the PRECEDENT Study in April 2024, and the KINETIC 2 Study in July 2024, our stock price is likely to decline, as it did in those instances, which would make a future financing more difficult and potentially more dilutive to our existing stockholders. In addition, future global economic uncertainty, reduced liquidity, capital market disruptions, and other macroeconomic or geopolitical conditions, including future banking crises, or pandemics and other health crises, may potentially make it more difficult for us to raise additional funds on favorable terms. Moreover, the terms of any financing may adversely affect the holdings or the rights of our stockholders. The issuance of additional securities, whether equity or debt, by us, or the possibility of such issuance, may cause the market price of our shares to decline. Failure to obtain capital if and when needed may force us to delay, limit or terminate our product development efforts or other operations.

We could also be required to seek funds through arrangements with collaborative partners or otherwise at an earlier stage than otherwise would be desirable and we may be required to relinquish rights to some of our technologies or product candidates or otherwise agree to terms unfavorable to us, any of which may have a material adverse effect on our business, operating results and prospects.

To the extent that we raise additional capital through the sale of common stock or securities convertible or exchangeable into common stock, the ownership interest of our stockholders in our company will be diluted. For example, in September, 2024, we entered into a Sales Agreement, or the ATM Sales Agreement, with TD Securities (USA) LLC, as sales agent, or TD Cowen, with respect to an “at the market offering” program pursuant to which we may offer and sell shares of our common stock having an aggregate offering price of up to $250.0 million, from time to time through TD Cowen. Upon our entry into the ATM Sales Agreement, we terminated our prior sales agreement with Cowen and Company, LLC, an affiliate of TD Cowen, dated November 7, 2023, or the Original Sales Agreement. At the time of such termination, $241.7 million out of an aggregate of $250.0 million of shares remained unsold under the Original Sales Agreement. Any significant sales of shares of our common stock pursuant to the ATM Sales Agreement would result in dilution to our current stockholders.

Debt financing, if available, would increase our fixed payment obligations and 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. The incurrence of indebtedness would result in increased fixed payment obligations, and we may be required to agree to certain restrictive covenants, such as limitations on our ability to incur additional debt, limitations on our ability to acquire, sell or license intellectual property rights and other operating restrictions that could adversely impact our ability to conduct our business. If we raise additional funds through collaboration, strategic partnerships and licensing arrangements with third parties, we may have to relinquish valuable rights to our product candidates, our intellectual property, future revenue streams or grant licenses on terms that are not favorable to us.

If we are unable to obtain funding on a timely basis, we may be required to significantly curtail, delay or discontinue one or more of our research or development programs or the commercialization of any approved product, or be unable to expand our operations or otherwise capitalize on our business opportunities, as desired, which could materially affect our business, financial condition and results of operations.

Risks Related to Our Common Stock

Market volatility may cause our stock price, and the value of an investment in our stock, to fluctuate.

The market price for our common stock, similar to that of other biopharmaceutical companies, is volatile. The market price of our common stock may fluctuate significantly in response to a number of factors, most of which we cannot control, including, among others:

- the results of our commercialization efforts with respect to ZURZUVAE in the U.S. as a treatment for women with PPD, and our ability to attain commercial success;
- positive or negative key data from our studies or clinical trials, plans for, progress of, timing of, changes to, delays in or results from clinical trials or non-clinical studies of any of our product candidates, serious adverse events arising in the course of development or post-marketing, or any delays or major announcements related to such studies or trials;
- the success or failure of any regulatory activities with respect to our existing or future product candidates;
- announcements of new products, technologies, commercial relationships, acquisitions, collaborations or other events by us or our competitors;
- the success or failure of our therapies;
- other developments with respect to our pipeline, including initiation of clinical trials of existing products in additional indications or key decisions of the FDA;
- regulatory or legal developments in the U.S. and other countries;
- adverse developments with respect to our intellectual property portfolio or failure to obtain or loss of exclusivity;
- failure of our future product candidates, if successfully developed and approved, to achieve commercial success;
- fluctuations in stock market prices and trading volumes of similar companies;
- the state of the U.S. and world economies, general market conditions and overall fluctuations in U.S. equity markets, including as a result of U.S. or world events;
- changes in healthcare laws affecting pricing, reimbursement or access;
- variations in our quarterly operating results, including as a result of events beyond our control, such as natural disasters, regional economic downturns, pandemics or other global health crises, social unrest, political instability, terrorism, or acts of war;
- changes in our financial guidance or securities analysts' estimates of our financial performance;
- changes in accounting principles;
- our ability to raise additional capital and the terms on which we can raise it;
- the impact of macroeconomic and geopolitical conditions;
- sales of large blocks of our common stock, including sales by our executive officers, directors and significant stockholders;
- additions or departures of key personnel;
- discussion of us or our stock price by the press and by online investor communities; and
- other risks and uncertainties described in these risk factors.

We are currently subject to legal actions and proceedings, which could distract our management and could result in substantial costs or large judgments against us.

In August 2024, a plaintiff filed a purported federal securities class action lawsuit in the Southern District of New York, or the Securities Class Action, against us and certain of our executive officers alleging violations of U.S. securities laws under Sections 10(b) and 20(a) of the Securities Exchange Act of 1934 and Rule 10b-5 promulgated thereunder and seeking an as-yet unspecified amount of damages allegedly sustained by parties who purchased our stock between April 12, 2021 and July 23, 2024, as well as applicable attorneys' fees and costs. In addition, we received a subpoena from the Enforcement Division of the U.S. Securities and Exchange Commission, or the SEC, in October 2024, requesting documents and information related to our NDA for zuranolone for the treatment of MDD, including communications with the FDA and any communications containing material nonpublic information.

At this time, we are unable to unable to predict the outcome of the Securities Class Action or the SEC investigation or reasonably estimate a range of possible losses. If either of these matters were concluded in a manner adverse to us and for which we incur substantial costs or damages not covered by our directors' and officers' liability insurance, such a conclusion could have a material adverse effect on our financial condition and business. In addition, either of these matters could adversely impact our reputation and divert management's attention and resources from other priorities, including the execution of business plans and strategies that are important to our ability to grow our business, any of which could have a material adverse effect on our business.

We have broad discretion in how we use our existing cash and the proceeds from potential future follow-on public offerings, and may not use such cash and proceeds effectively, which could affect our results of operations and cause our stock price to decline.

We have considerable discretion in the use of our cash and the application of the net proceeds from potential future follow-on public offerings. We may use cash and net proceeds for purposes that do not yield a significant return or any return at all for our stockholders. In addition, pending their use, we may invest the net proceeds from any potential future follow-on offerings in a manner that does not produce income or that loses value.

Anti-takeover provisions in our charter documents and under Delaware law could make an acquisition of us, even one that may be beneficial to our stockholders, more difficult and may prevent attempts by our stockholders to replace or remove our current management.

Provisions in our amended and restated certificate of incorporation and amended and restated bylaws may delay or prevent an acquisition of us or a change in our management. These provisions include a classified board of directors, a prohibition on actions by written consent of our stockholders and the ability of our board of directors to issue preferred stock without stockholder approval. In addition, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, which limits the ability of stockholders owning in excess of 15% of our outstanding voting stock to merge or combine with us. Although we believe these provisions collectively provide for an opportunity to obtain greater value for stockholders by requiring potential acquirers to negotiate with our board of directors, they would apply even if an offer rejected by our board were considered beneficial by some stockholders. In addition, these provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors, which is responsible for appointing the members of our management.

Future sales of our common stock may cause our stock price to decline.

Sales of a substantial number of shares of our common stock in the public market or the perception that these sales might occur could significantly reduce the market price of our common stock and impair our ability to raise adequate capital through the sale of additional equity securities. For example, the 6,241,473 shares of our common stock purchased by BIMA are no longer subject to contractually-agreed lockup periods and volume limitations, the last of which expired on December 31, 2023, and accordingly, BIMA is able to sell these shares without contractual limitations.

Item 5. Other Information

On September 8, 2024, Kimi Iguchi, our Chief Financial Officer, entered into a Rule 10b5-1 trading arrangement that provides that Ms. Iguchi, acting through a broker, may sell up to an aggregate of 51,200 shares of our common stock received upon the exercise of options granted to Ms. Iguchi in January 2015 as compensation for her employment, subject to adjustments for stock splits, stock combinations, stock dividends and other similar changes to our common stock. Sales of shares under this plan may only occur if the market price of our common stock is above certain specified prices that exceed the exercise price of the stock options from December 10, 2024 to January 23, 2025 and the underlying stock options will otherwise expire in late January 2025. The plan is scheduled to terminate on January 23, 2025, subject to earlier termination upon the sale of all shares subject to the plan upon termination by Ms. Iguchi or the broker, or as otherwise provided in the plan.

Other than as set forth above, none of our directors or officers adopted or terminated a Rule 10b5-1 trading arrangement or a non-Rule 10b5-1 trading arrangement (as defined in Item 408(c) of Regulation S-K) during the quarterly period covered by this Quarterly Report on Form 10-Q.

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.

Exhibit Index

Exhibit No.	Description
31.1*	Certification of Principal Executive Officer pursuant to Rule 13a-14(a) and Rule 15d-14(a) of the Securities Exchange Act of 1934, as amended, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2*	Certification of Principal Financial Officer pursuant to Rule 13a-14(a) and Rule 15d-14(a) of the Securities Exchange Act of 1934, as amended, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1+	Certification of Principal Executive Officer and Principal Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
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 With Embedded Linkbase Documents
104*	Cover Page Interactive Data File (formatted as inline XBRL with applicable taxonomy extension information and contained in Exhibits 101.*)

* Filed herewith.

\+ The certifications furnished in Exhibit 32.1 hereto are deemed to accompany this Quarterly Report on Form 10-K and will not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended. Such certifications will not be deemed to be incorporated by reference into any filings under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, except to the extent that the Registrant specifically incorporates it by reference.

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.

SAGE THERAPEUTICS, INC.

October 29, 2024

By: /s/ Barry E. Greene

Barry E. Greene

Chief Executive Officer, President and Director

(Principal Executive Officer)

October 29, 2024

By: /s/ Kimi Iguchi

Kimi Iguchi

Chief Financial Officer

(Principal Financial and Accounting Officer)

Exhibit 31.1

CERTIFICATIONS UNDER SECTION 302

I, Barry E. Greene, certify that:

1. I have reviewed this quarterly report on Form 10-Q for the period ended September 30, 2024 of Sage 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: October 29, 2024

/s/ Barry E. Greene

Name: Barry E. Greene
Title: Chief Executive Officer, President and Director
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATIONS UNDER SECTION 302

I, Kimi Iguchi, certify that:

1. I have reviewed this quarterly report on Form 10-Q for the period ended September 30, 2024 of Sage 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: October 29, 2024

/s/ Kimi Iguchi

Name:	Kimi Iguchi
Title:	Chief Financial Officer (Principal Financial and Accounting Officer)

Exhibit 32.1

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

In connection with this Quarterly Report on Form 10-Q of Sage Therapeutics, Inc. (the "Company") for the period ended September 30, 2024, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), each of the undersigned officers hereby certifies, pursuant to 18 U.S.C. (section) 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to the best of his or her knowledge:

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

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

/s/ Barry E. Greene

Name: Barry E. Greene
Title: Chief Executive Officer, President and Director (Principal Executive Officer)
Date: October 29, 2024

/s/ Kimi Iguchi

Name: Kimi Iguchi
Title: Chief Financial Officer (Principal Financial and Accounting Officer)
Date: October 29, 2024