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

FORM 10-Q

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

For the quarterly period ended June 30, 2023

or

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

Commission File Number: 000-50768

ACADIA PHARMACEUTICALS INC.

(Exact Name of Registrant as Specified in Its Charter)

Delaware	**06-1376651**
(State of Incorporation)	**(I.R.S. Employer Identification No.)**
12830 El Camino Real, Suite 400 San Diego, California	**92130**
(Address of Principal Executive Offices)	**(Zip Code)**

(858) 558-2871
(Registrant's Telephone Number, Including Area Code)

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

Title of Each Class	Trading Symbol	Name of Each Exchange on Which Registered
Common Stock, par value $0.0001 per share	**ACAD**	**The Nasdaq Stock Market LLC**

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, 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 ☒

Total shares of registrant's common stock outstanding as of the close of business on July 26, 2023:

Class	Number of Shares Outstanding
Common Stock, $0.0001 par value	163,728,859

ACADIA PHARMACEUTICALS INC.

FORM 10-Q

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PART I. FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

ACADIA PHARMACEUTICALS INC.
CONDENSED CONSOLIDATED BALANCE SHEETS
(in thousands, except share and per share amounts)

	June 30, 2023	December 31, 2022
	(unaudited)	
Assets		
Cash and cash equivalents	$ 107,941	$ 114,846
Investment securities, available-for-sale	267,437	301,977
Accounts receivable, net	81,852	62,195
Interest and other receivables	2,304	885
Inventory	9,199	6,636
Prepaid expenses	23,895	21,398
Total current assets	492,628	507,937
Property and equipment, net	5,193	6,021
Operating lease right-of-use assets	52,382	55,573
Intangible assets, net	68,219	—
Restricted cash	8,120	5,770
Long-term inventory	4,924	4,924
Other assets	11,303	7,587
Total assets	$ 642,769	$ 587,812
Liabilities and stockholders' equity		
Accounts payable	$ 18,811	$ 12,746
Accrued liabilities	169,131	112,884
Total current liabilities	187,942	125,630
Operating lease liabilities	49,778	52,695
Other long-term liabilities	9,256	9,074
Total liabilities	246,976	187,399
Commitments and contingencies (Note 9)		
Stockholders' equity:		
Preferred stock, $0.0001 par value; 5,000,000 shares authorized at June 30, 2023 and December 31, 2022; no shares issued and outstanding at June 30, 2023 and December 31, 2022	—	—
Common stock, $0.0001 par value; 225,000,000 shares authorized at June 30, 2023 and December 31, 2022; 163,355,787 shares and 162,064,872 shares issued and outstanding at June 30, 2023 and December 31, 2022, respectively	16	16
Additional paid-in capital	2,807,770	2,770,923
Accumulated deficit	(2,411,458)	(2,369,551)
Accumulated other comprehensive loss	(535)	(975)
Total stockholders' equity	395,793	400,413
Total liabilities and stockholders' equity	$ 642,769	$ 587,812

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

ACADIA PHARMACEUTICALS INC.
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except per share amounts)
(Unaudited)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
Revenues				
Product sales, net	$ 165,235	$ 134,563	$ 283,697	$ 250,031
Total revenues	165,235	134,563	283,697	250,031
Operating expenses				
Cost of product sales	7,459	2,667	9,126	5,617
Research and development	58,771	75,646	127,915	204,501
Selling, general and administrative	95,968	89,901	197,203	186,580
Total operating expenses	162,198	168,214	334,244	396,698
Income (loss) from operations	3,037	(33,651)	(50,547)	(146,667)
Interest income, net	4,550	580	8,350	685
Other (loss) income	(1,244)	(497)	3,601	(157)
Income (loss) before income taxes	6,343	(33,568)	(38,596)	(146,139)
Income tax (benefit) expense	5,229	443	3,311	928
Net income (loss)	$ 1,114	$ (34,011)	$ (41,907)	$ (147,067)
Earnings (net loss) per share:				
Basic	$ 0.01	$ (0.21)	$ (0.26)	$ (0.91)
Diluted	$ 0.01	$ (0.21)	$ (0.26)	$ (0.91)
Weighted average shares outstanding:				
Basic	163,458	161,654	163,109	161,443
Diluted	165,046	161,654	163,109	161,443

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

ACADIA PHARMACEUTICALS INC.
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(in thousands)
(Unaudited)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
Net income (loss)	$ 1,114	$ (34,011)	$ (41,907)	$ (147,067)
Other comprehensive income (loss):				
Unrealized (loss) gain on investment securities	(318)	(236)	439	(658)
Foreign currency translation adjustments	3	5	1	7
Comprehensive income (loss)	$ 799	$ (34,242)	$ (41,467)	$ (147,718)

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

ACADIA PHARMACEUTICALS INC.
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)
(Unaudited)

	Six Months Ended June 30,	
	2023	**2022**
Cash flows from operating activities		
Net loss	$ (41,907)	$ (147,067)
Adjustments to reconcile net loss to net cash used in operating activities:		
Stock-based compensation	29,859	35,475
Amortization of premiums and accretion of discounts on investment securities	(3,758)	547
Amortization of intangible assets	1,364	—
(Gain) loss on strategic investment	(3,601)	158
Loss on sale of investment securities	505	—
Depreciation	828	1,031
Changes in operating assets and liabilities:		
Accounts receivable, net	(19,657)	(3,587)
Interest and other receivables	(1,419)	42
Inventory	(2,519)	1,465
Prepaid expenses	(2,497)	2,940
Other assets	(115)	—
Operating lease right-of-use assets	3,405	3,172
Accounts payable	6,065	4,978
Accrued liabilities	26,875	16,854
Operating lease liabilities	(3,342)	(3,972)
Long-term liabilities	182	(1,490)
Net cash used in operating activities	(9,732)	(89,454)
Cash flows from investing activities		
Purchases of investment securities	(228,675)	(125,377)
Sale and maturity of investment securities	266,910	200,925
Intangible assets	(40,000)	—
Net cash (used in) provided by investing activities	(1,765)	75,548
Cash flows from financing activities		
Proceeds from issuance of common stock, net of issuance costs	6,944	6,298
Net cash provided by financing activities	6,944	6,298
Effect of exchange rate changes on cash	(2)	6
Net increase in cash, cash equivalents and restricted cash	(4,555)	(7,602)
Cash, cash equivalents and restricted cash		
Beginning of period	120,616	153,205
End of period	$ 116,061	$ 145,603
Supplemental disclosure of noncash information:		
Accrued milestone and contingent payments in connection with asset acquisition	$ 29,583	$ —

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

ACADIA PHARMACEUTICALS INC.
CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(in thousands)
(Unaudited)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
Total stockholders' equity, beginning balances	$ 374,258	$ 444,797	$ 400,413	$ 540,894
Common stock:				
Beginning balance	16	16	16	16
Ending balance	16	16	16	16
Additional paid-in capital:				
Beginning balance	2,787,034	2,712,025	2,770,923	2,694,646
Issuance of common stock from exercise of stock options and units	2,815	806	4,281	3,273
Issuance of common stock pursuant to employee stock purchase plan	2,663	3,025	2,663	3,025
Stock-based compensation	15,258	20,462	29,903	35,374
Ending balance	2,807,770	2,736,318	2,807,770	2,736,318
Accumulated deficit:				
Beginning balance	(2,412,572)	(2,266,632)	(2,369,551)	(2,153,576)
Net income (loss)	1,114	(34,011)	(41,907)	(147,067)
Ending balance	(2,411,458)	(2,300,643)	(2,411,458)	(2,300,643)
Other comprehensive (loss) income:				
Beginning balance	(220)	(612)	(975)	(192)
Other comprehensive (loss) income	(315)	(231)	440	(651)
Ending balance	(535)	(843)	(535)	(843)
Total stockholders' equity, ending balances	$ 395,793	$ 434,848	$ 395,793	$ 434,848

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

1. Organization and Business

Acadia Pharmaceuticals Inc. (the Company), based in San Diego, California, is a biopharmaceutical company focused on the development and commercialization of innovative medicines to address unmet medical needs in central nervous system (CNS) disorders and rare diseases.

In April 2016, the U.S. Food and Drug Administration (FDA) approved the Company's first drug, NUPLAZID® (pimavanserin), for the treatment of hallucinations and delusions associated with Parkinson's disease psychosis (PDP). NUPLAZID became available for prescription in the United States in May 2016.

In March 2023, the FDA approved the Company's second drug, DAYBUE™ (trofinetide), for the treatment of Rett syndrome. DAYBUE became available for prescription in the United States in April 2023.

2. Basis of Presentation and Significant Accounting Policies

Basis of Presentation

The accompanying unaudited condensed consolidated financial statements of the Company should be read in conjunction with the audited financial statements and notes thereto as of and for the year ended December 31, 2022 included in the Company's Annual Report on Form 10-K (Annual Report) filed with the Securities and Exchange Commission (the SEC). The accompanying financial statements have been prepared in accordance with accounting principles generally accepted in the United States (GAAP) for interim financial information and in accordance with the instructions to Form 10-Q and Article 10 of Regulation S-X. Accordingly, since they are interim statements, the accompanying financial statements do not include all of the information and notes required by GAAP for complete financial statements. In the opinion of management, the accompanying financial statements reflect all adjustments (consisting of normal recurring adjustments) that are necessary for a fair statement of the financial position, results of operations, cash flows, and stockholders' equity for the interim periods presented. Interim results are not necessarily indicative of results for a full year. The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the amounts reported in the financial statements and the accompanying notes. Actual results could differ materially from those estimates.

Risk and Uncertainties

Global economic and business activities continue to face widespread macroeconomic uncertainties, including labor shortages, inflation and monetary supply shifts, recession risks, recent and potential future disruptions in access to bank deposits or lending commitments due to bank failures, potential disruptions from the Russia-Ukraine conflict, and the lingering effects of the COVID-19 pandemic. The Company continues to actively monitor the impact of these macroeconomic factors on its financial condition, liquidity, operations and workforce. The extent of the impact of these factors on the Company's operational and financial performance, including its ability to execute its business strategies and initiatives in the expected time frame, will depend on future developments, which are uncertain and cannot be predicted; however, any continued or renewed disruption resulting from these factors could negatively impact the Company's business.

Cash, Cash Equivalents and Restricted Cash

The following table provides a reconciliation of cash, cash equivalents and restricted cash reported within the condensed consolidated statements of cash flows that sum to the total of the same such amounts shown in the condensed consolidated statements of cash flows (in thousands):

	Six Months Ended June 30, 2023		Six Months Ended June 30, 2022	
	Beginning of period	End of period	Beginning of period	End of period
Cash and cash equivalents	$ 114,846	$ 107,941	$ 147,435	$ 139,833
Restricted cash	5,770	8,120	5,770	5,770
Total cash, cash equivalents and restricted cash shown in the condensed consolidated statements of cash flows	$ 120,616	$ 116,061	$ 153,205	$ 145,603

Accounts Receivable

Accounts receivable are recorded net of customer allowances for distribution fees, prompt payment discounts, chargebacks, and credit losses. Allowances for distribution fees, prompt payment discounts and chargebacks are based on contractual terms. The Company estimated the current expected credit losses of its accounts receivable by assessing the risk of loss and available relevant information about collectability, including historical credit losses, existing contractual payment terms, actual payment patterns of its customers, individual customer circumstances, and reasonable and supportable forecast of economic conditions expected to exist throughout the contractual life of the receivable. The Company has not historically experienced significant credit losses. Based on its assessment, as of June 30, 2023 the Company determined that an allowance for credit loss was not required.

Revenues

The Company operates in one business segment. Results of its operations are reported on a consolidated basis for purposes of segment reporting, consistent with internal management reporting. Revenues consist of net product sales to customers, all of which are sales in the U.S. Revenues by product are as follows (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
NUPLAZID	$ 142,018	$ 134,563	$ 260,480	$ 250,031
DAYBUE	23,217	—	23,217	—
Product sales, net	$ 165,235	$ 134,563	$ 283,697	$ 250,031

License Fees and Royalties

The Company expenses amounts paid to acquire licenses associated with products under development when the ultimate recoverability of the amounts paid is uncertain and the technology has no alternative future use when acquired. Acquisitions of technology licenses are charged to expense or capitalized based upon management's assessment regarding the ultimate recoverability of the amounts paid and the potential for alternative future use. The Company has determined that technological feasibility for its product candidates is reached when the requisite regulatory approvals are obtained to make the product available for sale.

In connection with the first commercial sale of DAYBUE in April 2023, the Company made a milestone payment of $40.0 million pursuant to its 2018 license agreement with Neuren Pharmaceuticals Limited (Neuren), as disclosed in Note 9. The Company capitalized the $40.0 million payment as an intangible asset and began amortizing the asset in April 2023 on a straight-line basis over the estimated useful life of the licensed patents through early 2036 The Company recorded amortization expense related to this intangible asset of $0.8 million for the six months ended June 30, 2023. As of June 30, 2023, estimated future amortization expense related to the Company's intangible asset was $1.6 million for the remainder of 2023, and $3.1 million for each subsequent year.

Following the FDA approval of DAYBUE, the Company was granted a Rare Pediatric Disease Priority Review Voucher (PRV). Pursuant to the license agreement, the Company is required to pay Neuren one third of the value of the PRV at the time of sale or use of the PRV. If the PRV is sold, the amount to be paid will be the sale value net of applicable fees. If the PRV is not sold but used by the Company, the amount to be paid will be the average price of the three most recent publicly announced sales of Rare Pediatric Disease PRVs immediately preceding the issuance of the PRV to the Company. The Company capitalized the $29.6 million for the estimated PRV value owed to Neuren as an intangible asset and began amortizing it in April 2023 on a straight-line basis over the estimated useful life of the licensed patents through early 2036. The Company recorded amortization expense related to this intangible asset of $0.6 million for the six months ended June 30, 2023. As of June 30, 2023, estimated future amortization expense related to the Company's intangible asset was $1.2 million for the remainder of 2023, and $2.3 million for each subsequent year.

Royalties incurred in connection with the Company's license agreement with Neuren, as disclosed in Note 9, are expensed to cost of product sales as revenue from product sales is recognized.

Intangible Assets

Finite-lived intangible assets are recorded at cost, net of accumulated amortization, and, if applicable, impairment charges. Amortization of finite-lived intangible assets is recorded over the assets' estimated useful lives on a straight-line basis or based on the pattern in which economic benefits are consumed, if reliably determinable. We review our finite-lived intangible assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. If such intangible assets are considered to be impaired, the impairment to be recognized is measured by the amount by which the carrying amount of intangible the assets exceeds the estimated fair value of the intangible assets. No impairment loss was recorded on intangible assets during the three and six months ended June 30, 2023.

3. Earnings (Net Loss) Per Share

Basic earnings (net loss) per share is calculated by dividing the net income (loss) by the weighted average number of common shares outstanding for the period. Diluted earnings (net loss) per share is computed by dividing the net income (loss) by the weighted average number of common shares and common stock equivalents outstanding for the period determined using the treasury stock method. For purposes of diluted earnings (net loss) per share calculation, equity awards, employee stock purchase plan rights, and warrants are considered to be common stock equivalents.

For the three and six months ended June 30, 2023, potentially dilutive shares excluded from calculation of diluted earnings (net loss) per share due to anti-dilutive effect were approximately 16,378,000 shares and 23,174,000 shares, respectively. For the three and six months ended June 30, 2022, potentially dilutive shares excluded from calculation of diluted net loss per share due to anti-dilutive effect were approximately 21,645,000 shares. Potential dilutive shares included from calculation of diluted earnings per share were approximately 1,588,000 shares for the three months ended June 30, 2023.

4. Stock-Based Compensation

The following table summarizes the total stock-based compensation expense included in the Company's statements of operations for the periods presented (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
Cost of product sales	$ 200	$ 346	$ 368	$ 669
Research and development	3,666	7,232	7,638	12,696
Selling, general and administrative	11,288	12,934	21,853	22,110
	$ 15,154	$ 20,512	$ 29,859	$ 35,475

The fair value of each employee stock option and each employee stock purchase plan right granted is estimated on the grant date under the fair value method using the Black-Scholes valuation model, which requires the Company to make a number of assumptions including the estimated expected life of the award and related volatility. The fair value of restricted stock units is estimated based on the market price of the Company's common stock on the date of grant. The estimated fair values of stock options, purchase plan rights, and restricted stock units are then expensed over the requisite service period, which is generally the vesting period. For restricted stock units requiring satisfaction of both market and service conditions, the estimated fair values are generally expensed over the longest of the explicit, implicit and derived service periods. Performance-based stock awards vest upon the achievement of certain pre-defined company-specific performance-based criteria. Expense related to these performance-based stock awards is generally recognized ratably over the expected performance period once the pre-defined performance-based criteria for vesting becomes probable.

5. Balance Sheet Details

Inventory consisted of the following (in thousands):

	June 30, 2023	December 31, 2022
Finished goods	$ 2,004	$ 1,926
Work in process	5,310	4,427
Raw material	6,809	5,207
	$ 14,123	$ 11,560
Reported as:		
Inventory	$ 9,199	$ 6,636
Long-term inventory	4,924	4,924
Total	$ 14,123	$ 11,560

Amount reported as long-term inventory consisted of raw materials for NUPLAZID as of June 30, 2023 and December 31, 2022. The Company has raw materials beyond a one year production plan that help limit the exposures from potential supply interruption. Those raw materials beyond the one year production plan were classified as long-term inventory.

Accrued liabilities consisted of the following (in thousands):

	June 30, 2023	December 31, 2022
Accrued sales allowances	$ 47,423	$ 26,046
Accrued research and development services	31,697	35,048
Accrued contingent payments	29,583	—
Accrued compensation and benefits	25,413	28,023
Accrued consulting and professional fees	12,242	11,377
Current portion of lease liabilities	9,058	9,305
Current portion of accrued branded prescription drug fees	7,828	1,060
Other	5,887	2,025
	$ 169,131	$ 112,884

6. Investments

The carrying value and amortized cost of the Company's investments, summarized by major security type, consisted of the following (in thousands):

	June 30, 2023			
	Amortized Cost	Unrealized Gains	Unrealized Losses	Estimated Fair Value
U.S. Treasury notes	$ 38,752	$ 3	$ (82)	$ 38,673
Government sponsored enterprise securities	221,852	2	(473)	221,381
Municipal bonds	7,385	—	(2)	7,383
	$ 267,989	$ 5	$ (557)	$ 267,437

	December 31, 2022			
	Amortized Cost	Unrealized Gains	Unrealized Losses	Estimated Fair Value
U.S. Treasury notes	$ 15,956	$ —	$ (11)	$ 15,945
Government sponsored enterprise securities	81,216	16	(291)	80,941
Corporate debt securities	20,873	—	(98)	20,775
Commercial paper	184,923	30	(637)	184,316
	$ 302,968	$ 46	$ (1,037)	$ 301,977

The Company has classified all of its available-for-sale investment securities as current assets on its condensed consolidated balance sheets based on the highly liquid nature of the investment securities and because these investment securities are considered available for use in current operations. The Company has classified all equity securities as other assets on its condensed consolidated balance sheets.

At June 30, 2023 and December 31, 2022, the Company had 35 and 43 available-for-sale investment securities, respectively, in an unrealized loss position. The following table presents gross unrealized losses and fair value for those available-for-sale investment securities that were in an unrealized loss position as of June 30, 2023 and December 31, 2022, aggregated by investment category and length of time that the individual securities have been in a continuous loss position (in thousands):

	Less Than 12 Months		12 Months or Greater		Total	
	Estimated Fair Value	Unrealized Losses	Estimated Fair Value	Unrealized Losses	Estimated Fair Value	Unrealized Losses
June 30, 2023						
U.S. Treasury notes	$ 28,776	$ (82)	$ —	$ —	$ 28,776	$ (82)
Government sponsored enterprise securities	211,563	(473)	—	—	211,563	(473)
Municipal bonds	2,498	(2)	—	—	2,498	(2)
Total	$ 242,837	$ (557)	$ —	$ —	$ 242,837	$ (557)

	Less Than 12 Months		12 Months or Greater		Total	
	Estimated Fair Value	Unrealized Losses	Estimated Fair Value	Unrealized Losses	Estimated Fair Value	Unrealized Losses
December 31, 2022						
U.S. Treasury notes	$ 15,945	$ (11)	$ —	$ —	$ 15,945	$ (11)
Government sponsored enterprise securities	58,254	(291)	—	—	58,254	(291)
Corporate debt securities	20,775	(98)	—	—	20,775	(98)
Commercial paper	135,200	(637)	—	—	135,200	(637)
Total	$ 230,174	$ (1,037)	$ —	$ —	$ 230,174	$ (1,037)

During the first quarter of 2023, the Company made a sale of all of its investments in commercial paper. The proceeds from sales of these securities were $183.0 million and net realized losses from the related sales were $0.5 million. There were no other sales of available-for-sale investment securities in prior periods.

At each reporting date, the Company performs an evaluation of impairment to determine if any unrealized losses are the result of credit losses. Impairment is assessed at the individual security level. Factors considered in determining whether a loss resulted from a credit loss or other factors include the Company's intent and ability to hold the investment until the recovery of its amortized cost basis, the extent to which the fair value is less than the amortized cost basis, the length of time and extent to which fair value has been less than the cost basis, the financial condition of the issuer, any historical failure of the issuer to make scheduled interest or principal payments, any changes to the rating of the security by a rating agency, any adverse legal or regulatory events affecting the issuer or issuer's industry, any significant deterioration in economic conditions.

As of June 30, 2023, the Company did not intend to sell the investments in unrealized loss position and it was unlikely that the Company will be required to sell the investments before the recovery of their amortized cost basis. The Company has not historically experienced significant losses on its investments. Based on its evaluation, the Company determined its year-to-date credit losses related to its available-for-sale securities were immaterial at June 30, 2023.

7. Fair Value Measurements

The Company's investments include cash equivalents, available-for-sale investment securities consisting of money market funds, municipal bonds, and government sponsored enterprises in accordance with the Company's investment policy, and equity securities. The Company's investment policy defines allowable investment securities and establishes guidelines relating to credit quality, diversification, and maturities of its investments to preserve principal and maintain liquidity. All investment securities have a credit rating of at least Aa3/AA- or better, or P-1/A-1 or better, as determined by Moody's Investors Service or Standard & Poor's.

The Company's cash equivalents, available-for-sale investment securities and equity securities are classified within the fair value hierarchy as defined by authoritative guidance. The Company's investment securities and equity securities classified as Level 1 are valued using quoted market prices. The Company obtains the fair value of its Level 2 financial instruments from third-party pricing services. The pricing services utilize industry standard valuation models whereby all significant inputs, including benchmark yields, reported trades, broker/dealer quotes, issuer spreads, bids, offers, or other market-related data, are observable. The Company validates the prices provided by the third-party pricing services by reviewing their pricing methods and matrices, and obtaining market values from other pricing sources. After completing the validation procedures, the Company did not adjust or override any fair value measurements provided by these pricing services as of June 30, 2023 and December 31, 2022.

In November 2021, the Company established a plan whereby substantially all full-time employees excluding executive management are eligible to receive a series of cash bonuses based on achievement of certain conditions as described in more detail in Note 8 to the condensed consolidated financial statements included in this quarterly report on Form 10-Q (this Quarterly Report). The Company estimated the fair value of the cash awards using a Monte Carlo simulation, which utilizes level 3 inputs such as volatility, probabilities of success, and other inputs that are not observable in active markets. The cash awards are required to be measured at fair value on a recurring basis each reporting period, with changes in the fair value recognized as compensation cost over the derived service period of the awards.

The Company has not transferred any investment securities between the classification levels.

The recurring fair value measurements of the Company's financial assets and liabilities measured at June 30, 2023 and December 31, 2022 consisted of the following (in thousands):

		Fair Value Measurements at Reporting Date Using		
	June 30, 2023	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets				
Money market fund	$ 81,485	$ 81,485	$ —	$ —
U.S. Treasury notes	38,673	38,673	—	—
Equity securities	10,781	10,781	—	—
Government sponsored enterprise securities	226,351	—	226,351	—
Municipal bonds	7,383	—	7,383	—
Total	$ 364,673	$ 130,939	$ 233,734	$ —
Liabilities				
Cash awards	$ 2,129	$ —	$ —	$ 2,129
Total	$ 2,129	$ —	$ —	$ 2,129

	December 31, 2022	Fair Value Measurements at Reporting Date Using: Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets				
Money market fund	$ 72,578	$ 72,578	$ —	$ —
U.S. Treasury notes	15,945	15,945	—	—
Equity securities	7,180	7,180	—	—
Government sponsored enterprise securities	94,803	—	94,803	—
Municipal bonds	20,775	—	20,775	—
Commercial paper	184,316	—	184,316	—
Total	$ 395,597	$ 95,703	$ 299,894	$ —
Liabilities				
Cash awards	$ 898	$ —	$ —	$ 898
Total	$ 898	$ —	$ —	$ 898

Changes in estimated fair value of contingent cash awards during the six months ended June 30, 2023 are as follows (in thousands):

Balance as of December 31, 2022	$ 898
Vesting of awards	444
Expense forfeited	(104)
Change in fair value	891
Balance as of June 30, 2023	$ 2,129

8. Stockholders' Equity

Contingent Cash Awards

In November 2021, the Company established a plan whereby substantially all full-time employees excluding executive management are eligible to receive a series of cash bonuses over certain periods based on continued employment and the Company's stock price reaching a pre-specified target. The maximum potential payout of the cash awards at the grant date was $15.1 million. The Company has determined that the cash awards were classified as liabilities pursuant to ASC Topic 718, *Compensation –Stock Compensation*. The Company estimates the fair value of the awards at each reporting period using a Monte Carlo simulation, which is recognized as compensation cost over the derived service period. Total fair value of the awards at the grant date was $4.4 million. The maximum potential payout at June 30, 2023 after adjusting for forfeitures was $10.4 million. The fair value of the awards at March 31, 2023 was approximately $2.1 million. The fair value of the awards at June 30, 2023 was approximately $3.0 million. During the three months ended June 30, 2023, the Company recorded $0.9 million compensation cost related to the awards. During the three months ended June 30, 2022, the Company recorded a reversal of $0.8 million compensation cost related to the awards. During the six months ended June 30, 2023 and 2022, the Company recorded a total of $1.2 million and $0.1 million compensation cost related to the awards, respectively.

2023 Inducement Plan

The Board adopted the Company's 2023 Inducement Plan (Inducement Plan) on February 1, 2023. The Inducement Plan permits the grant of stock options, stock appreciation rights, restricted stock awards, restricted stock unit awards, performance stock awards and other stock-related awards. Stock awards granted under the Inducement Plan may only be made to individuals who did not previously serve as employees or non-employee directors of the Company or an affiliate of the Company. In addition, stock awards must be approved by either a majority of the Company's independent directors or the Compensation Committee. The terms of the Inducement Plan are otherwise substantially similar to the Company's 2010 Equity Incentive Plan. The maximum number of shares of Company common stock that may be issued under the Inducement Plan is 1,750,000 shares. At June 30, 2023, there were 975,882 shares available for new grants.

9. Commitments and Contingencies

Collaboration, License and Merger Agreements

The Company has entered into various collaboration, licensing and merger agreements which provide the Company with rights to certain know-how, technology and patent rights. The agreements generally include upfront license fees, development and commercial milestone payments upon achievement of certain clinical and commercial development and annual net sales milestones, as well as royalties calculated as a percentage of product revenues, with rates that vary by agreement. As of June 30, 2023, the Company may be required to make milestone payments up to $1.6 billion in the aggregate for candidates in its pipeline.

In August 2018, the Company entered into a license agreement with Neuren and obtained exclusive North American rights to develop and commercialize trofinetide for Rett syndrome and other indications. Under the terms of the agreement, the Company paid Neuren an upfront license fee of $10.0 million and it may be required to pay up to an additional $455.0 million in milestone payments based on the achievement of certain development and annual net sales milestones. In addition, the Company will be required to pay Neuren tiered, escalating, double-digit percentage royalties based on net sales. The license agreement was accounted for as an asset acquisition and the upfront cash payment of $10.0 million was expensed to research and development in the third quarter of 2018 as there is no alternative use for the asset. In connection with the FDA approval of DAYBUE, the Company paid a milestone payment of $40.0 million to Neuren following the first commercial sale of DAYBUE pursuant to the license agreement. The Company capitalized the $40.0 million milestone payment as an intangible asset as it was deemed probable of occurring as of March 31, 2023. In addition, the Company was granted a Rare Pediatric Disease PRV following the FDA approval of DAYBUE. Pursuant to the license agreement, the Company is required to pay Neuren one third of the value of the PRV at the time of sale or use of the PRV. The Company capitalized the $29.6 million for the estimated PRV value owed to Neuren as an intangible asset.

In January 2022, the Company entered into a license and collaboration agreement with Stoke Therapeutics, Inc. (Stoke) to discover, develop and commercialize novel RNA-based medicines for the potential treatment of severe and rare genetic neurodevelopmental diseases of the CNS. The collaboration includes SYNGAP1 syndrome, Rett syndrome (MECP2), and an undisclosed neurodevelopmental target. For the SYNGAP1 program, the two companies will jointly share global research, development and commercialization responsibilities and share 50/50 in all worldwide costs and future profits. In addition, Stoke is eligible to receive potential development, regulatory, first commercial sales and sales milestones. For the MECP2 program and the undisclosed neurodevelopmental program, the Company acquired an exclusive worldwide license to develop and commercialize MECP2 program and the undisclosed neurodevelopmental program. Stoke will lead research and pre-clinical development activities, while the Company will lead clinical development and commercialization activities. The Company will fund research and pre-clinical development activities related to these two targets and Stoke is eligible to receive potential development, regulatory, first commercial sales and sales milestones as well as tiered royalty payments on worldwide sales starting in the mid-single digit range and escalating to the mid-teens based on revenue levels. Under the terms of the agreement, the Company paid Stoke a $60.0 million upfront payment which was accounted for as an asset acquisition and was expensed to research and development in the first quarter of 2022 as there is no alternative use for the asset. The Company may be required to pay up to an additional $907.5 million in milestones as well as royalties on future sales.

Corporate Credit Card Program

In connection with the Company’s credit card program, the Company established a letter of credit for $2.0 million, which has automatic annual extensions and is fully secured by restricted cash.

Fleet Program

In connection with the Company’s fleet program, the Company established a letter of credit for $0.4 million, which has automatic annual extensions and is fully secured by restricted cash.

Legal Proceedings

Patent Infringement

On July 24, 2020, the Company filed complaints against (i) Aurobindo Pharma Limited and its affiliate Aurobindo Pharma USA, Inc. and (ii) Teva Pharmaceuticals USA, Inc. and its affiliate Teva Pharmaceutical Industries Ltd., and on July 30, 2020, the Company filed complaints against (i) Hetero Labs Limited and its affiliates Hetero Labs Limited Unit-V and Hetero USA Inc., (ii) MSN Laboratories Private Ltd. and its affiliate MSN Pharmaceuticals, Inc., and (iii) Zydus Pharmaceuticals (USA) Inc. and its affiliate Cadila Healthcare Limited. These complaints, which were filed in the United States District Court for the District of Delaware, allege infringement of certain of the Company’s Orange Book-listed patents covering NUPLAZID (Pimavanserin I Cases).

The cases have been assigned to the Honorable Richard G. Andrews. On September 1, 2020, Aurobindo filed its answer and counterclaims seeking declaratory judgments of noninfringement and invalidity. On September 22, 2020, the Company filed its answer to Aurobindo's counterclaims. On August 31, 2020, Teva filed its answer and counterclaims seeking declaratory judgments of noninfringement and invalidity. On September 21, 2020, the Company filed its answer to Teva's counterclaims. On October 5, 2020, Hetero filed its answer and counterclaims seeking declaratory judgments of noninfringement and invalidity. On October 26, 2020, the Company filed its answer to Hetero's counterclaims. On September 30, 2020, MSN filed its answer and counterclaims seeking declaratory judgments of noninfringement and invalidity regarding certain of the Company's Orange Book-listed patents covering NUPLAZID. On November 5, 2020, the Company filed its first amended complaint against MSN in the United States District Court for the District of Delaware, alleging infringement of certain of the Company's Orange Book-listed patents covering NUPLAZID. On November 19, 2020, MSN filed its answer and counterclaims seeking declaratory judgments of noninfringement and invalidity regarding certain of the Company's Orange Book-listed patents covering NUPLAZID. On December 10, 2020, the Company filed its answer to MSN's counterclaims. On November 2, 2020, Zydus filed its answer and counterclaims seeking declaratory judgments of noninfringement and invalidity. On November 23, 2020, the Company filed its answer to Zydus's counterclaims. On December 8, 2020, the parties' joint proposed scheduling order was entered by Judge Andrews. On April 7, 2021, the Company filed its first amended complaints against Hetero and Teva and its second amended complaint against MSN, to include an additional Orange Book-listed patent covering NUPLAZID. On April 8, 2021, the Company filed its first amended complaint against Zydus and on April 9, 2021, the Company filed its first amended complaint against Aurobindo. On April 20, 2021, MSN filed its answer, affirmative defenses, and counterclaims to the Company's second amended complaint, seeking declaratory judgments of noninfringement and invalidity regarding certain of the Company's Orange Book-listed patents covering NUPLAZID. On April 21, 2021, Teva filed its answer, affirmative defenses, and counterclaims to the Company's first amended complaint, seeking declaratory judgments of noninfringement and invalidity. On April 22, 2021, Zydus filed its answer, affirmative defenses, and counterclaims to the Company's first amended complaint, seeking declaratory judgments of noninfringement and invalidity.

On April 22, 2021, Aurobindo filed its answer, affirmative defenses, and counterclaims to the Company's first amended complaint, seeking declaratory judgments of noninfringement and invalidity. On May 11, 2021, the Company filed its answer to MSN's counterclaims. On May 12, the Company filed its answer to Teva's counterclaims. On May 13, the Company filed its answer to Zydus's counterclaims and its answer to Aurobindo's counterclaims. A joint trial in the matters is scheduled for May 15, 2023. The Company entered into an agreement effective April 22, 2021 with Hetero settling all claims and counterclaims in the litigation. The agreement allows Hetero to launch its generic pimavanserin product on February 27, 2038, subject to certain triggers for earlier launch. The Hetero case was dismissed by joint agreement on May 3, 2021.

On August 27, 2021, the Company filed its second amended complaint against Zydus to include an additional Orange Book-listed patent covering NUPLAZID. On September 10, 2021, Zydus filed its answer, affirmative defenses, and counterclaims to the Company's second amended complaint, seeking declaratory judgments of noninfringement and invalidity. Also on September 10, 2021, the parties filed their Joint Claim Construction Chart. On October 1, 2021, the Company filed its answer to Zydus's counterclaims. On November 30, 2021, the Company filed a stipulation and proposed order to dismiss two of its Orange Book-listed patents covering NUPLAZID against Teva, which was ordered by the Court on December 1, 2021. On January 28, 2022, the parties filed their Joint Claim Construction Brief and Appendix. On February 23, 2022, the Court heard oral argument on claim construction. On April 6, 2022, the Court issued a Memorandum Opinion construing several terms at issue, adopting the Company's construction on two terms, Defendants' construction on two terms, and one agreed-upon construction. On February 28, 2022, the Company filed a stipulation and proposed order to dismiss one patent against MSN, which was ordered by the Court on March 1, 2022. On March 10, 2022, the Company filed a stipulation and proposed order to dismiss one patent against Teva, which was ordered by the Court on March 10, 2022. On March 22, 2022, the Company filed a stipulation and proposed order to dismiss seven patents against Aurobindo, which was ordered by the Court on March 22, 2022. On March 30, 2022, the Company filed a stipulation and proposed order to dismiss two patents against Zydus, which was ordered by the Court on March 31, 2022. On April 22, 2022, the Company filed a stipulation and proposed order of non-infringement against Aurobindo regarding certain of the Company's Orange Book-listed patents covering NUPLAZID, which was ordered by the Court on April 22, 2022. On April 26, 2022, the Company filed a stipulation and proposed order of non-infringement against MSN regarding certain of the Company's Orange Book-listed patents covering NUPLAZID, which was ordered by the Court on April 26, 2022. On April 26, 2022, the Company filed a stipulation and proposed order of non-infringement against Teva regarding certain of the Company's Orange Book-listed patents covering NUPLAZID, which was ordered by the Court on April 27, 2022. On May 10, 2022, the Company filed its second amended complaint against Teva to include an additional Orange Book-listed patent covering NUPLAZID. On May 18, 2022, the Company filed a stipulation and proposed order of non-infringement against Zydus regarding certain of the Company's Orange Book-listed patents covering NUPLAZID, which was ordered by the Court on May 19, 2022. On May 24, 2022, Teva filed its answer, affirmative defenses, and counterclaims to the Company's second amended complaint, seeking declaratory judgments of noninfringement and invalidity regarding certain of the Company's Orange Book-listed patents covering NUPLAZID. On June 1, 2022, the Company filed its second amended complaint against Aurobindo alleging infringement of certain of the Company's Orange Book-listed patents covering NUPLAZID. On June 2, 2022, the Company filed its third amended complaint against Zydus alleging infringement of certain of the Company's Orange Book-listed patents covering NUPLAZID. On June 14, 2022, the Company filed its answer to Teva's

counterclaims. June 15, 2022, Aurobindo filed its answer, affirmative defenses, and counterclaims to the Company's second amended complaint, seeking declaratory judgments of noninfringement and invalidity regarding certain of the Company's Orange Book-listed patents covering NUPLAZID. On June 16, 2022, Zydus filed its answer, affirmative defenses, and counterclaims to the Company's third amended complaint, seeking declaratory judgments of noninfringement and invalidity regarding certain of the Company's Orange Book-listed patents covering NUPLAZID. On July 6, 2022, the Company filed its answer to Aurobindo's counterclaims.

On September 7, 2022, the consolidated cases were reassigned to the Honorable Judge Gregory B. Williams. On September 30, 2022, the Company filed a stipulation and proposed order to stay the claims currently asserted against Teva and for Teva to be bound by the result of the litigation rendered against the remaining Defendants, which was ordered by the Court on October 4, 2022. On October 21, 2022, the Company filed complaints against Aurobindo, MSN and Zydus in the United States District Court for the District of Delaware alleging infringement of an additional Orange Book-listed patent covering NUPLAZID (Pimavanserin II Cases).

On March 29, 2023, following Aurobindo's conversion of various patent certifications from Paragraph IV certifications to Paragraph III certifications in connection with the Pimavanserin I Case, the Company filed a stipulation and proposed order in the Pimavanserin I Case to dismiss the remaining asserted patents against Aurobindo. This stipulation was ordered by the Court on March 30, 2023.

The Company entered into an agreement, effective March 31, 2023, with Zydus settling all claims and counterclaims in the Pimavanserin I Cases and Pimavanserin II Cases. The agreement allows Zydus to launch its generic pimavanserin 10 mg products on September 23, 2036 and 34 mg products on February 27, 2038, subject to certain triggers for earlier launch. On April 4, 2023, the Company filed a stipulation and proposed order to dismiss all claims and counterclaims between the Company and Zydus in the Pimavanserin I Cases and Pimavanserin II Cases, which was ordered by the Court on April 5, 2023.

In connection with the Pimavanserin I Cases, only MSN remains as an active defendant. On April 6, 2023, the Company and MSN filed a stipulation and proposed order requesting adjournment of the final pre-trial conference and trial, and requesting resolution of the remaining issue – MSN's validity challenge of the sole patent in suit – through summary judgment briefing by the parties, which was ordered by the Court on April 10, 2023. Briefing was completed on June 28, 2023 and oral argument is scheduled for September 27, 2023.

In connection with the Pimavanserin II cases, MSN and Aurobindo are the remaining defendants. Trial is scheduled in the matter for December 2, 2024.

Securities Class Action

On April 19, 2021, a purported stockholder of the Company filed a putative securities class action complaint (captioned Marechal v. Acadia Pharmaceuticals, Inc., Case No. 21-cv-0762) in the U.S. District Court for the Southern District of California against the Company and certain of the Company's current executive officers. On September 29, 2021, the Court issued an order designating lead plaintiff and lead counsel. On December 10, 2021, lead plaintiff filed an amended complaint. The amended complaint generally alleges that defendants violated Sections 10(b) and 20(a) of the Securities Exchange Act of 1934 by failing to disclose that the materials submitted in support of its sNDA seeking approval of pimavanserin for the treatment of hallucinations and delusions associated with dementia-related psychosis contained statistical and design deficiencies and that the FDA was unlikely to approve the sNDA in its current form. The amended complaint seeks unspecified monetary damages and other relief. Defendants filed a motion to dismiss the amended complaint on February 15, 2022. On September 27, 2022, the Court issued an order denying Defendants' motion to dismiss. Defendants filed their answer to the amended complaint on October 19, 2022, and filed a motion for reconsideration on October 25, 2022. On February 2, 2023, the Court issued an order denying the motion for reconsideration. On March 17, 2023, the Court issued a scheduling order, setting an August 21, 2023, deadline for lead plaintiff to file a motion for class certification, and setting a fact-discovery cutoff of December 15, 2023. The parties are currently engaged in discovery.

Management currently believes that none of the foregoing claims or other actions pending against the Company as of June 30, 2023 is likely to have, individually or in the aggregate, a material adverse effect on the Company's business, liquidity, financial position, or results of operations. Given the unpredictability inherent in litigation, however, the Company cannot predict the outcome of these matters. The Company is unable to estimate possible losses or ranges of losses that may result from these matters, and therefore it has not accrued any amounts in connection with these matters other than attorneys' fees incurred to date.

10. Leases

The Company leases facilities and certain equipment under noncancelable operating leases with remaining lease terms of 0.5 years to 7.9 years, some of which include options to extend for up to two five-year terms. These optional periods were not considered in the determination of the right-of-use asset or the lease liability as the Company did not consider it reasonably certain that it would exercise such options.

The operating lease costs were as follows (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
Operating lease cost	$ 2,741	$ 1,737	$ 4,922	$ 3,848

Supplemental cash flow information related to the Company's leases were as follows (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
Cash paid for amounts included in the measurement of lease liabilities:				
Operating cash flows from operating leases	$ 2,350	$ 2,285	$ 4,720	$ 4,428
Right-of-use assets obtained in exchange for operating lease obligations:	(90)	881	214	2,321

The balance sheet classification of the Company's lease liabilities was as follows (in thousands):

	June 30, 2023	December 31, 2022
Operating lease liabilities		
Current portion included in accrued liabilities	$ 9,058	$ 9,305
Operating lease liabilities	49,778	52,695
Total operating lease liabilities	$ 58,836	$ 62,000

Maturities of lease liabilities were as follows (in thousands):

	Operating Leases
Remainder of 2023	$ 4,706
Years ending December 31,	
2024	9,228
2025	9,308
2026	8,672
2027	8,361
Thereafter	28,689
Total lease payments	68,964
Less:	
Imputed interest	(10,128)
Total operating lease liabilities	$ 58,836

Operating lease liabilities are based on the net present value of the remaining lease payments over the remaining lease term. In determining the present value of lease payments, the Company uses its incremental borrowing rate based on the information available at the lease commencement date. As of June 30, 2023, the weighted average remaining lease term was 7.5 years and the weighted average discount rate used to determine the operating lease liability was 4.4%.

In the fourth quarter of 2018, the Company entered into an agreement to lease the 4th and 5th floors of corporate office space in San Diego, California with total minimum lease payments of $50.4 million over an initial term of 10 years and 9 months. In February 2020, the Company entered into the first amendment to the lease agreement to lease the 2nd floor of corporate office space in San Diego, California with total minimum lease payments of $25.3 million over an initial term of approximately 10 years and 7 months. In March 2020, the Company entered into the second amendment to the lease agreement which increased the total minimum lease payments of the original corporate office space to $51.4 million. In the third quarter of 2020, the lease for the 4th and 5th floors of corporate office space commenced and the Company capitalized a right of use asset and related lease liability of $40.3 million. In the first quarter of 2021, the lease for the 2nd floor of corporate office space commenced and the Company capitalized a right of use asset and related lease liability of $19.2 million. In connection with this lease and the amendment, the Company established a letter of credit for $3.1 million, which has automatic annual extensions and is fully secured by restricted cash.

In May 2023, the Company entered into an agreement to sublease its 2nd floor of corporate office space in San Diego to a sublessee with a total minimum sublease income of $18.4 million over a term of approximately 7 years and 6 months. As of June 30, 2023, the sublease had not commenced.

11. Income Taxes

For the three months ended June 30, 2023 and 2022, the Company recognized an income tax expense of $5.2 million on a pre-tax income of $6.3 million and income tax expense of $0.4 million on a pre-tax loss of $33.6 million, respectively, resulting in effective tax rates of 82.4% and -1.3%, respectively. The effective tax rate for the three months ended June 30, 2023 varies from the U.S. federal statutory tax rate of 21% due to federal and state income tax expense as a result of current taxable income, offset by valuation allowance. The effective tax rate for the three months ended June 30, 2022 varies from the U.S. federal statutory tax rate of 21% due to state income tax expense as a result of current taxable income, offset by valuation allowance.

For the six months ended June 30, 2023 and 2022, the Company recognized an income tax expense of $3.3 million on a pre-tax loss of $38.6 million and income tax expense of $0.9 million on a pre-tax loss of $146.1 million, respectively, resulting in effective tax rates of -8.6% and -0.6%, respectively. The effective tax rate for the six months ended June 30, 2023 varies from the U.S. federal statutory tax rate of 21% due to federal and state income tax expense as a result of current taxable income, offset by valuation allowance. The effective tax rate for the six months ended June 30, 2022 varies from the U.S. federal statutory tax rate of 21% due to state income tax expense as a result of current taxable income, offset by valuation allowance.

The Company calculated the provision for income taxes for the three and six months ended June 30, 2023 using a discrete effective tax rate method as the annual effective tax rate method would not provide a reliable estimate. For the three and six months ended June 30, 2022, the Company calculated the provision for income taxes by applying an estimate of the annual effective tax rate for the full year to ordinary income (loss) adjusted by the tax impact of discrete items.

12. Subsequent Event

In July 2023, the Company expanded its current licensing agreement for trofinetide with Neuren to acquire rights to the drug outside of North America as well as global rights in Rett syndrome and Fragile X syndrome to Neuren's development candidate NNZ-2591. Under the terms of the expanded agreement, Neuren will receive an upfront payment of $100.0 million and is eligible to receive up to the following additional milestone payments based on the achievement of certain development and sales milestones (in thousands):

	Trofinetide	NNZ-2591
Development milestones	$ —	$ 15,000
First commercial sale milestones		
North America	—	40,000
Europe	45,000	45,000
Japan	18,750	18,750
Sales milestones		
North America	—	350,000
Europe	170,000	170,000
Japan	110,000	110,000
Rest of World	82,500	82,500
Total milestone payments	$ 426,250	$ 831,250

In addition, the Company will be required to pay Neuren tiered royalties from the mid-teens to low-twenties percent of trofinetide net sales outside of North America. Percentage royalties related to NNZ-2591 net sales are identical to the trofinetide in each of North America and outside North America.

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

The following discussion and analysis of our condensed consolidated financial condition and results of operations should be read in conjunction with our unaudited condensed consolidated financial statements and related notes included in this Quarterly Report and the audited financial statements and notes thereto as of and for the year ended December 31, 2022 included with our Annual Report, filed with the SEC. Past operating results are not necessarily indicative of results that may occur in future periods.

This Quarterly Report contains forward-looking statements. These forward-looking statements involve a number of risks and uncertainties. Such forward-looking statements include statements about the benefits to be derived from NUPLAZID, DAYBUE and other drug candidates, the potential market opportunities for pimavanserin and other drug candidates, our strategy for the commercialization of NUPLAZID and DAYBUE, our plans for exploring and developing pimavanserin and trofinetide for indications other than in PDP or Rett syndrome, respectively, our plans and timing with respect to seeking regulatory approvals, the potential commercialization of any of our drug candidates that receive regulatory approval, the progress, timing, results or implications of clinical trials and other development activities involving NUPLAZID, DAYBUE and other drug candidates, our strategy for discovering, developing and, if approved, commercializing drug candidates, our existing and potential future collaborations, our estimates of future payments, revenues and profitability, our estimates regarding our capital requirements, future expenses and need for additional financing, possible changes in legislation, and other statements that are not historical facts, including statements which may be preceded by the words "believes," "expects," "hopes," "may," "will," "plans," "intends," "estimates," "could," "should," "would," "continues," "seeks," "aims," "projects," "predicts," "pro forma," "anticipates," "potential" or similar words. For forward-looking statements, we claim the protection of the Private Securities Litigation Reform Act of 1995. Readers of this Quarterly Report are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date on which they are made. We undertake no obligation to update or revise publicly any forward-looking statements. Actual events or results may differ materially from our expectations. Important factors that could cause actual results to differ materially from those stated or implied by our forward-looking statements include, but are not limited to, the risk factors set forth under the section captioned "Risk Factors" in this Quarterly Report.

Overview

Background

We are a biopharmaceutical company focused on the development and commercialization of innovative medicines that address unmet medical needs in CNS disorders and rare diseases. We have a portfolio of commercial stage products, in-development product opportunities, and research programs that are designed to address significant unmet needs in CNS disorders and rare diseases. In order to achieve significant long-term growth, we will develop our current portfolio, expand our pipeline of early and late-stage programs through strategic business development, and invest in targeted internal research efforts.

Our commercial portfolio includes two products. In April 2016, the FDA approved NUPLAZID for the treatment of hallucinations and delusions associated with PDP, and is the first and only drug approved in the United States for this condition. In March 2023, the FDA approved DAYBUE for the treatment of Rett syndrome, also the first and only drug approved for this condition. DAYBUE became available for prescription in the United States in April 2023.

NUPLAZID is a selective serotonin inverse agonist/antagonist, preferentially targeting 5-HT_{2A} receptors with no appreciable affinity for dopaminergic, histaminergic, or muscarinic receptors. Through this novel mechanism, NUPLAZID demonstrated significant efficacy in reducing the hallucinations and delusions associated with PDP without negatively impacting motor function in our Phase 3 pivotal trial. NUPLAZID has the potential to avoid many of the debilitating side effects of existing antipsychotics, none of which are approved by the FDA for the treatment of PDP. We hold worldwide commercialization rights to pimavanserin.

In August 2018, we acquired an exclusive North American license to develop and commercialize DAYBUE for Rett syndrome and other indications from Neuren. Rett syndrome is a debilitating neurological disorder that occurs predominantly in females following apparently normal development for the first six months of life. Rett syndrome also occurs in boys, albeit far less frequently. Typically, between six to eighteen months of age, patients experience a period of rapid decline with loss of purposeful hand use and spoken communication and inability to independently conduct activities of daily living. Symptoms also include seizures, hand movements or stereotypies, disorganized breathing patterns, scoliosis and sleep disturbances, among others. The FDA approval of DAYBUE for the treatment of Rett syndrome was based on the positive results from our pivotal Phase 3 Lavender™ study which demonstrated statistically significant improvement over placebo for both co-primary endpoints as well as the key secondary endpoint.

In connection with the FDA approval of DAYBUE in March 2023, we were required to make a milestone payment of $40.0 million to Neuren following the first commercial sale of DAYBUE pursuant to the license agreement. The $40.0 million milestone was paid in June 2023. We capitalized the $40.0 million milestone payment as an intangible asset as it was deemed probable of occurring as of March 31, 2023 and began amortizing it on a straight-line basis over the estimated useful life in April 2023. In addition, we were granted a Rare Pediatric Disease PRV following the FDA approval of DAYBUE. Pursuant to the license agreement, we are required to pay Neuren one third of the value of the PRV at the time of sale or use of the PRV. If the PRV is sold, the amount to be paid will be the sale value net applicable fees. If the PRV is not sold but used by us, the amount to be paid will be the average price of most recent three publicly announced sales of Rare Pediatric Disease PRVs immediately preceding the issuance of the PRV to us. We capitalized the $29.6 million for the estimated PRV value owed to Neuren as an intangible asset and began amortizing it on a straight-line basis over the estimated useful life in April 2023.

In July 2023, we expanded our current licensing agreement for trofinetide with Neuren to acquire rights to the drug outside of North America as well as global rights in Rett syndrome and Fragile X syndrome to Neuren's development candidate NNZ-2591. Under the terms of the expanded agreement, Neuren will receive an upfront payment of $100.0 million and is eligible to receive up to an additional $426.3 million in milestone payments based on the achievement of certain commercial and sales milestones for trofinetide outside of North America and up to $831.3 million in milestone payments based on the achievement of certain development and sales milestones for NNZ-2591. In addition, we will be required to pay Neuren tiered, escalating, double-digit percentage royalties based on net sales of trofinetide and NNZ-2591.

Through its unique mechanism and the clinical studies conducted to date, we believe that pimavanserin has the potential to address important unmet medical needs in neurological and psychiatric disorders in addition to PDP. Today we are evaluating pimavanserin for the treatment of the negative symptoms of schizophrenia in a Phase 3 clinical development program. The negative symptoms of schizophrenia have been associated with poor long-term outcomes and disability even when the positive symptoms are well-controlled, and today there are no FDA-approved therapies. In the fourth quarter of 2019 we announced positive results from our pivotal ADVANCE study and in the third quarter of 2020, we initiated a second pivotal study, ADVANCE-2. The Phase 3 program is evaluating the efficacy of pimavanserin in patients with predominantly negative symptoms of schizophrenia who have achieved adequate control of positive symptoms with their existing antipsychotic treatment. We completed enrollment in ADVANCE-2 and expect that top-line results will be available in the first quarter of 2024.

In June 2023, we announced that we added a new Phase 3 development candidate to our rare disease portfolio, ACP-101 (intranasal carbetocin), for the treatment of hyperphagia (a false and unrelenting state of starvation) in Prader-Willi syndrome (PWS). We acquired worldwide rights to develop and commercialize ACP-101 with the acquisition of Levo Therapeutics in June 2022. We recently aligned on plans with the FDA to initiate a Phase 3 study in the fourth quarter of 2023.

In addition, in August 2022 we announced that we are developing an internally discovered new molecule, ACP-204, which builds upon the learnings of pimavanserin in the treatment of neuropsychiatric symptoms. We completed Phase 1 development of ACP-204 which demonstrated a favorable safety and tolerability profile, and supports its target product profile as a potential treatment for Alzheimer's disease psychosis (ADP). We met with the FDA, aligned on dosing and plans to initiate a Phase 2 study in the fourth quarter of 2023. ACP-204 is a new chemical entity for which we hold the worldwide rights.

In January 2022, we entered into a license and collaboration agreement with Stoke to discover, develop and commercialize novel RNA-based medicines for the potential treatment of severe and rare genetic neurodevelopmental diseases of the CNS. The collaboration includes SYNGAP1 syndrome, Rett syndrome (MECP2), and an undisclosed neurodevelopmental target. For the SYNGAP1 program, the two companies will jointly share global research, development and commercialization responsibilities and share 50/50 in all worldwide costs and future profits. For the Rett syndrome (MECP2) and the undisclosed neurodevelopmental program, Stoke will lead research and pre-clinical development activities, while we will lead clinical development and commercialization activities.

We have incurred substantial operating losses since our inception due in large part to expenditures for our research and development activities. As of June 30, 2023, we had an accumulated deficit of $2.4 billion. Contingent on the level of business development activities we may complete as well as pipeline programs we may advance, we may continue to incur operating losses for the next few years as we incur significant research and development costs and costs for commercialization of DAYBUE.

We maintain a website at www.acadia.com to which we regularly post copies of our press releases as well as additional information about us. Our filings with the SEC are available free of charge through our website as soon as reasonably practicable after being electronically filed with or furnished to the SEC. Interested persons can subscribe on our website to email alerts that are sent automatically when we issue press releases, file our reports with the SEC or post certain other information to our website. Information contained in our website does not constitute a part of this Quarterly Report or our other filings with the SEC.

Impact of COVID-19 on our Business

As a result of the COVID-19 pandemic, there have been changes in the practice of medical care and medical education. For example, many health care providers initially expanded their utilization of telemedicine to conduct patient visits, and in many regions within the United States the ability of our commercial and medical field teams to call upon medical clinics, hospitals, long-term care facilities and skilled nursing facilities was restricted or converted to virtual access. We continue to access our customers both in person and virtually. Currently, health care providers are conducting patient visits in-person and through telemedicine and our sales force has been able to call upon medical clinics, hospitals, long-term care facilities and skilled nursing facilities either in person in accordance with applicable regulatory guidance and local policies or virtually. Most medical congresses, an important means for medical education, are being conducted both in person and virtually and enrollment in clinical trials is being assessed based on local COVID-19 conditions and regional regulation and public health guidance.

During the pandemic, the growth of sales of NUPLAZID was negatively impacted by a reduction in patient office visits, reduced occupancy rates at long-term care facilities, and reduced access to healthcare professionals. While we have observed incremental improvements in some of these factors since 2021, their levels are still below where they were pre-pandemic. No assurances can be given that the changes in medical care resulting from the pandemic will not continue to have additional negative impacts on our business, results of operations, financial condition and prospects.

Financial Operations Overview

Product Revenues

Net product sales consist of sales of NUPLAZID and DAYBUE. The FDA approved NUPLAZID in April 2016 for the treatment of hallucinations and delusions associated with PDP and we launched the product in the United States in May 2016. The FDA approved DAYBUE in March 2023 for the treatment of Rett syndrome and we launched the product in the United States in April 2023.

Cost of Product Sales

Cost of product sales consists of third-party manufacturing costs, freight, and indirect overhead costs associated with sales of NUPLAZID and DAYBUE. Cost of product sales may also include period costs related to certain inventory manufacturing services, excess or obsolete inventory adjustment charges, unabsorbed manufacturing and overhead costs, and manufacturing variances. In addition, cost of product sales may include license fees and royalties. License fees and royalties currently consist of milestone payments expensed or capitalized and subsequently amortized under our 2018 license agreement with Neuren. License fees and royalties also include royalties of tiered, escalating, double-digit percentages due to Neuren based upon net sales of DAYBUE.

Cost of sales for newly launched product will not include the full cost of manufacturing until the initial pre-launch inventory is depleted, and additional inventory is manufactured and sold. The cost of sales as a percentage of net sales of DAYBUE for the three and six months ended June 30, 2023 was enhanced by sales of the initial pre-launch inventory, and therefore, use of active pharmaceutical ingredients and components that were previously expensed as research and development expense prior to the launch of DAYBUE, referred to as zero cost inventories. However, we do not expect that the cost of sales as a percentage of net sales of DAYBUE will increase significantly after we have sold all zero cost inventories and commenced the sales of inventories which will reflect the full cost of manufacturing.

Research and Development Expenses

Our research and development expenses have consisted primarily of fees paid to external service providers, salaries and related personnel expenses, facilities and equipment expenses, and other costs incurred related to pre-commercial product candidates. We charge all research and development expenses to operations as incurred. Our research and development activities have focused on pimavanserin, trofinetide, ACP-204 and other early-stage programs. We currently are responsible for all costs incurred in the ongoing development of pimavanserin and we expect to continue to make substantial investments in clinical studies of pimavanserin for the treatment of the negative symptoms of schizophrenia. In connection with the FDA approval of NUPLAZID, we committed to conduct four post-marketing studies. The fourth commitment, a randomized, placebo-controlled eight-week study or studies in predominantly frail and elderly patients that would add to the NUPLAZID safety database by exposing an aggregate of at least 500 patients to NUPLAZID, is completed and pending for FDA's acknowledgement and acceptance. In connection with the FDA approval of DAYBUE, we are required to conduct post-marketing work, including a clinical study of renal impairment in healthy volunteers, nonclinical carcinogenicity studies, and nonclinical in vitro drug interaction studies. We will be responsible for all costs incurred for these post-marketing requirements. In addition, we expect to incur increased research and development expenses as a result of advancement of our early-stage development pipeline programs.

We use external service providers to manufacture our product candidates and for the majority of the services performed in connection with the preclinical and clinical development of pimavanserin, trofinetide, and our early-stage programs. Historically, we have used our internal research and development resources, including our employees and discovery infrastructure, across several projects and many of our costs have not been attributable to a specific project. Accordingly, we have not reported our internal research and development costs on a project basis. To the extent that external expenses are not attributable to a specific project, they are included in other early-stage programs. The following table summarizes our research and development expenses for the three and six months ended June 30, 2023 and 2022 (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
Costs of external service providers:				
NUPLAZID (pimavanserin)	$ 15,780	$ 9,784	$ 30,087	$ 31,590
DAYBUE (trofinetide)	5,418	19,130	22,854	30,210
Early-stage programs	19,274	18,722	37,490	33,546
Upfront and milestone payments*	—	5,734	—	65,734
Subtotal	40,472	53,370	90,431	161,080
Internal costs	14,633	15,044	29,846	30,725
Stock-based compensation	3,666	7,232	7,638	12,696
Total research and development expenses	$ 58,771	$ 75,646	$ 127,915	$ 204,501

* Includes upfront and milestone consideration as well as transaction costs associated with acquired in-process research and development.

Although NUPLAZID and DAYBUE have been approved by the FDA for the treatment of hallucinations and delusions associated with PDP and Rett syndrome, respectively, at this time, due to the risks inherent in regulatory requirements and clinical development, we are unable to estimate with certainty the costs we will incur for the ongoing or additional development of pimavanserin for the negative symptoms of schizophrenia, to support the commercialization of DAYBUE, as well as the further development of our early-stage pipeline programs. Due to these same factors, we are unable to determine with any certainty the anticipated completion dates for our current research and development programs. Clinical development and regulatory approval timelines, probability of success, and development costs vary widely. While our current development efforts are primarily focused on advancing the development of pimavanserin for the treatment of the negative symptoms of schizophrenia and the development of ACP-204, we anticipate that we will make determinations as to which programs to pursue and how much funding to direct to each program on an ongoing basis in response to the scientific and clinical success of each product candidate, as well as an ongoing assessment of the commercial potential of each opportunity and our financial position. We cannot forecast with any degree of certainty which product opportunities will be subject to future collaborative or licensing arrangements, when such arrangements will be secured, if at all, and to what degree any such arrangements would affect our development plans and capital requirements. Similarly, we are unable to estimate with certainty the costs we will incur for post-marketing studies that we committed to conduct in connection with FDA approval of NUPLAZID.

We expect our research and development expenses will continue to be substantial as we conduct studies pursuant to our post-marketing commitments and pursue the development of pimavanserin for the negative symptoms of schizophrenia and the further development of ACP-204 and other early-stage pipeline programs. The lengthy process of completing clinical trials and supporting development activities and seeking regulatory approval for our product opportunities requires the expenditure of substantial resources. Any failure by us or delay in completing clinical trials, or in obtaining regulatory approvals, could cause our research and development expenses to increase and, in turn, have a material adverse effect on our results of operations.

Selling, General and Administrative Expenses

Our selling, general and administrative expenses consist of salaries and other related costs, including stock-based compensation expense, for our commercial personnel, including our specialty sales force, our medical education professionals, and our personnel serving in executive, finance, business development, and business operations functions. Also included in selling, general and administrative expenses are fees paid to external service providers to support our commercial activities associated with NUPLAZID and DAYBUE, professional fees associated with legal and accounting services, costs associated with patents and patent applications for our intellectual property and charitable donations to independent charitable foundations that support Parkinson’s disease patients generally. Changes in selling, general and administrative expenses in future periods are subject to the evolving PDP market dynamics, the Rett syndrome market and our further development of pimavanserin in additional indications other than PDP.

Income Tax Expense (Benefit)

Because the Company maintains a full valuation allowance against its net deferred tax assets, income tax expense is expected to primarily consist of current federal and state tax expense as a result of taxable income anticipated or incurred in certain jurisdictions. Income tax expense (benefit) may fluctuate from quarter to quarter due to adjustments related to non-recurring transactions, timing of revenue and expense across different tax jurisdictions and changes in certain tax assessments.

Critical Accounting Policies and Estimates

Our discussion and analysis of our financial condition and results of operations is based on our condensed consolidated financial statements. We have identified the accounting policies that we believe require application of management's most subjective judgments, often requiring the need to make estimates about the effect of matters that are inherently uncertain and may change in subsequent periods. Our actual results may differ substantially from these estimates under different assumptions or conditions. There have been no significant changes to our critical accounting policies and estimates since December 31, 2022. For a description of our critical accounting policies that affect our significant judgments and estimates used in the preparation of our consolidated financial statements, refer to our Annual Report.

Results of Operations

Fluctuations in Operating Results

Our results of operations have fluctuated significantly from period to period in the past and are likely to continue to do so in the future. We anticipate that our quarterly and annual results of operations will be impacted for the foreseeable future by several factors, including the progress and timing of expenditures related to our commercial activities associated with NUPLAZID and DAYBUE and the extent to which we generate revenue from product sales, our development of pimavanserin for the negative symptoms of schizophrenia, our further development of the early-stage pipeline programs and the progress and timing of expenditures related to studies of NUPLAZID in PDP pursuant to our post-marketing commitments. Further, we expect our sales allowances to vary from quarter to quarter due to fluctuations in our Medicare Part D Coverage Gap liability and the volume of purchases eligible for government mandated discounts and rebates, as well as changes in discount percentages that may be impacted by potential future price increases and other factors. We cannot predict with certainty what the full impact that macroeconomic developments, including recent and potential future bank failures, and the ongoing conflict between Ukraine and Russia may have on our business, results of operations, financial condition and prospects. Due to these fluctuations, we believe that the period-to-period comparisons of our operating results are not a good indication of our future performance.

Comparison of the Three Months Ended June 30, 2023 and 2022

Product Sales, Net

Net product sales, comprised of NUPLAZID and DAYBUE, were $165.2 million and $134.6 million for the three months ended June 30, 2023 and 2022, respectively.

Net product sales of NUPLAZID were $142.0 million and $134.6 million for the three months ended June 30, 2023 and 2022, respectively. The increase in net product sales of NUPLAZID of $7.4 million was primarily due to a higher average net selling price of NUPLAZID in 2023 compared to 2022. Also contributing to the increase was the growth in NUPLAZID unit sales in the three months ended June 30, 2023 as compared to the same period in 2022. Net product sales of DAYBUE were $23.2 million for the three months ended June 30, 2023. There were no net product sales of DAYBUE during the three months ended June 30, 2022.

Cost of Product Sales

Cost of product sales was $7.5 million and $2.7 million for the three months ended June 30, 2023 and 2022, respectively, or approximately 5% and 2% of net product sales, respectively. The increase of cost of product sales was primarily due to the $3.7 million license fees and royalties expensed during the three months ended June 30, 2023, including royalties due to Neuren based on net sales of DAYBUE and the amortization of the milestone payments expensed or capitalized under our 2018 license agreement with Neuren. There were no license fees and royalties in the same period of 2022.

Certain manufacturing related expenses incurred prior to DAYBUE receiving FDA approval were classified as research and development expenses, resulting in zero cost inventory. If cost of product sales included previously expensed inventories, the total cost of sales with these manufacturing costs included for the three months ended June 30, 2023 would have increased by approximately $1.5 million.

Research and Development Expenses

Research and development expenses decreased to $58.8 million for the three months ended June 30, 2023, including $3.7 million in stock-based compensation expense, from $75.6 million for the three months ended June 30, 2022, including $7.2 million in stock-based compensation expense. The decrease in research and development expenses was mainly due to the decreased costs associated with pre-approval manufacturing supply expenses for trofinetide for the treatment of Rett syndrome.

Selling, General and Administrative Expenses

Selling, general and administrative expenses increased to $96.0 million for the three months ended June 30, 2023, including $11.3 million in stock-based compensation expense, from $89.9 million for the three months ended June 30, 2023, including $12.9 million in stock-based compensation expense. The increase in selling, general and administrative expenses was primarily due to increased personnel costs associated with the DAYBUE launch.

Comparison of the Six Months Ended June 30, 2023 and 2022

Product Sales, Net

Net product sales, comprised of NUPLAZID and DAYBUE, were $283.7 million and $250.0 million for the six months ended June 30, 2023 and 2022, respectively.

Net product sales of NUPLAZID were $260.5 million and $250.0 million for the six months ended June 30, 2023 and 2022, respectively. The increase in net product sales of NUPLAZID of $10.5 million was primarily due to a higher average net selling price of NUPLAZID in 2023 compared to 2022. Net product sales of DAYBUE were $23.2 million for the six months ended June 30, 2023. No sales of DAYBUE were recognized during the six months ended June 30, 2022.

The following table provides a summary of activity with respect to our sales allowances and accruals for the six months ended June 30, 2023 (in thousands):

	Distribution Fees, Discounts & Chargebacks	Co-Pay Assistance	Rebates, Data Fees & Returns	Total
Balance as of December 31, 2022	$ 10,923	$ (340)	$ 26,046	$ 36,629
Provision related to current period sales	42,246	2,143	56,629	101,018
Credits/payments for current period sales	(31,246)	(2,349)	(23,105)	(56,700)
Credits/payments for prior period sales	(10,923)	340	(15,680)	(26,263)
Balance as of June 30, 2023	$ 11,000	$ (206)	$ 43,890	$ 54,684

Cost of Product Sales

Cost of product sales was $9.1 million and $5.6 million for the six months ended June 30, 2023 and 2022, respectively, or approximately 3% and 2% of net product sales, respectively. The increase of cost of product sales was primarily due to the $3.7 million license fees and royalties expensed for the six months ended June 30, 2023, including royalties due to Neuren based on net sales of DAYBUE and the amortization of the milestone payments expensed or capitalized under our 2018 license agreement with Neuren. There were no license fees and royalties during the same period in 2022.

Certain manufacturing related expenses incurred prior to DAYBUE receiving FDA approval were classified as research and development expenses, resulting in zero cost inventory. Prior to receiving FDA approval for DAYBUE in March 2023, we manufactured inventory and recorded approximately $29.9 million related to the zero cost inventory as research and development expense. Utilizing the actual direct costs to manufacture DAYBUE prior to receiving FDA approval, had the previously expensed inventory been capitalized and recognized when sold, the total cost of sales with these manufacturing costs included for the six months ended June 30, 2023 would have increased by approximately $1.5 million. We do not expect our cost of product sales for DAYBUE to increase significantly as a percentage of net product sales in future periods as we continue to produce inventory for future sales.

Subsequent to using our entire zero cost inventories, we estimate our overall cost of product sales as a percentage of total net product sales will be in the range of a mid-single digit to high single digit percentage.

Research and Development Expenses

Research and development expenses decreased to $127.9 million for the six months ended June 30, 2023, including $7.6 million in stock-based compensation expense, from $204.5 million for the six months ended June 30, 2022, including $12.7 million in stock-based compensation expense. The decrease in research and development expenses was mainly due to the $60 million upfront payment made to Stoke for the license and collaboration agreement in 2022 as well as a reduction in overall program spend.

Selling, General and Administrative Expenses

Selling, general and administrative expenses increased to $197.2 million for the six months ended June 30, 2023, including $21.9 million in stock-based compensation expense, from $186.6 million for the six months ended June 30, 2022, including $22.1 million in stock-based compensation expense. The increase in selling, general and administrative expenses was primarily due to increased commercial costs associated with the DAYBUE launch, partially offset by efficiencies in our commercial support of NUPLAZID.

Liquidity and Capital Resources

We have funded our operations primarily through sales of our equity securities, payments received under our collaboration agreements, debt financings, interest income, and with revenues from sales of NUPLAZID and DAYBUE since their approvals. We anticipate that the level of cash used in our operations will fluctuate in future periods depending on the levels of spend for our ongoing and planned commercial activities for NUPLAZID, our commercialization of DAYBUE for the treatment of Rett syndrome, our ongoing and planned development activities for pimavanserin for the negative symptoms of schizophrenia, studies to be conducted pursuant to our post-marketing commitments and our ongoing and planned development activities for the early-stage pipeline programs. We expect that our cash, cash equivalents, and investment securities will be sufficient to fund our planned operations through and beyond the next 12 months.

We may require additional financing in the future to fund our operations. Our future capital requirements will depend on, and could increase significantly as a result of, many factors, including:

- the costs of acquiring additional product candidates or research and development programs;
- the scope, prioritization and number of our research and development programs;
- the ability of our collaborators and us to reach the milestones and other events or developments triggering payments under our collaboration or license agreements, or our collaborators' ability to make payments under these agreements;
- our ability to enter into new collaboration and license agreements;
- the progress in, and the costs of, our ongoing and planned development activities for pimavanserin, post-marketing studies for NUPLAZID to be conducted over the next several years, and ongoing and planned commercial activities for NUPLAZID;
- the costs of our development activities for our early-stage pipeline programs;
- the costs of commercializing NUPLAZID, including the maintenance and development of our sales and marketing capabilities;
- the costs of commercializing and successfully launching DAYBUE, including the maintenance and development of our sales and marketing capabilities;
- the costs of establishing, or contracting for, sales and marketing capabilities for our product candidates;
- the amount of U.S. product sales from NUPLAZID and DAYBUE;
- the costs of preparing applications for regulatory approvals for NUPLAZID in jurisdictions other than the U.S., and in additional indications other than PDP and for other product candidates, as well as the costs required to support review of such applications;
- the costs of manufacturing and distributing NUPLAZID and DAYBUE for commercial use in the U.S.;
- our ability to obtain regulatory approval for, and subsequently generate product sales from, NUPLAZID in jurisdictions other than the U.S. or for the negative symptoms of schizophrenia, or from DAYBUE, and other product candidates;
- the extent to which we are obligated to reimburse collaborators or collaborators are obligated to reimburse us for costs under collaboration agreements;

- the costs involved in filing, prosecuting, enforcing, and defending patent claims and other intellectual property rights;
- the costs of maintaining or securing manufacturing arrangements for clinical or commercial production of pimavanserin, trofinetide or other product candidates; and
- the costs associated with litigation, including the costs incurred in defending against any product liability claims that may be brought against us related to NUPLAZID or DAYBUE.

Unless and until we can generate significant cash from our operations, we expect to satisfy our future cash needs through our existing cash, cash equivalents and investment securities, public or private sales of our securities, debt financings, or strategic collaborations. In the past, periods of turmoil and volatility in the financial markets have adversely affected the market capitalizations of many biotechnology companies, and generally made equity and debt financing more difficult to obtain. For example, due to macroeconomic developments, including recent and potential future disruptions in access to bank deposits or lending commitments due to the COVID-19 pandemic and actions taken to slow its spread, the Ukraine-Russia conflict, bank failures, the global credit and financial markets have experienced extreme volatility and disruptions, including diminished liquidity and credit availability, declines in consumer confidence, declines in economic growth, increases in unemployment rates and uncertainty about economic stability. These events, coupled with other factors, may limit our access to additional financing in the future. We cannot be certain that additional funding will be available to us on acceptable terms, or at all. If adequate funds are not available when needed, we will be required to delay, reduce the scope of, or eliminate one or more of our research or development programs or our commercialization efforts. We also may be required to relinquish greater or all rights to product candidates at an earlier stage of development or on less favorable terms than we would otherwise choose. Additional funding, if obtained, may significantly dilute existing stockholders and could negatively impact the price of our stock.

We have invested a substantial portion of our available cash in money market funds, municipal bonds, and government sponsored enterprises in accordance with our investment policy. Our investment policy defines allowable investments and establishes guidelines relating to credit quality, diversification, and maturities of our investments to preserve principal and maintain liquidity. All investment securities have a credit rating of at least Aa3/AA- or better, or P-1/A-1 or better, as determined by Moody's Investors Service or Standard & Poor's. Our investment portfolio has not been adversely impacted by the disruptions in the credit markets that have occurred in the past. However, if there are future disruptions in the credit markets, there can be no assurance that our investment portfolio will not be adversely affected.

Material Cash Requirements

Our material cash requirements in the short and long term consist of the operational, manufacturing, and capital expenditures, a portion of which contain contractual or other obligations. We plan to fund our material cash requirements with our current financial resources together with our anticipated receipts from product sales. On a long-term basis, we manage future cash requirements relative to our long-term business plans.

Our primary uses of cash and operating expenses relate to paying employees and consultants, administering clinical trials, marketing our products, and providing technology and facility infrastructure to support our operations. We also make investments in our office and laboratory facilities to enable continued expansion of our business.

As discussed above, in connection with the FDA approval of DAYBUE in March 2023, we were required to make a milestone payment of $40.0 million to Neuren following the first commercial sale of DAYBUE pursuant to the license agreement. The milestone was paid in June 2023. We were granted a PRV following the FDA approval of DAYBUE. Pursuant to the license agreement, we are required to pay Neuren one third of the value of the PRV upon sale or use of the PRV. In addition, under the terms of the expanded agreement in July 2023, we will make an upfront payment to Neuren of $100.0 million.

Cash Flows

At June 30, 2023, we had $375.4 million in cash, cash equivalents, and investment securities, compared to $416.8 million at December 31, 2022. This $41.4 million decrease was primarily due to cash used in operating activities, including the $40.0 million milestone payment paid to Neuren following the first commercial sale of DAYBUE. Net cash used in operating activities decreased to $9.7 million for the six months ended June 30, 2023 compared to $89.5 million for the six months ended June 30, 2022. This decrease in cash used in operations was primarily resulted from an increase in our net revenues and decreased research and development costs mainly due to the $60 million upfront payment made to Stoke in 2022.

Net cash used in investing activities totaled $1.8 million for the six months ended June 30, 2023 compared to net cash provided by investing activities of $75.5 million for the six months ended June 30, 2022. The increase in net cash used in investing activities for the six months ended June 30, 2023 compared to the six months ended June 30, 2022 was primarily due to milestone payment of $40 million to Neuren and decreased net sale and maturities of investment securities.

Net cash provided by financing activities increased to $6.9 million for the six months ended June 30, 2023 compared to $6.3 million for the six months ended June 30, 2022. This increase in net cash provided by financing activities for the six months ended June 30, 2023 was attributable primarily to an increase in proceeds resulting from the exercise of employee stock options.

Off-Balance Sheet Arrangements

To date, we have not had any relationships with unconsolidated entities or financial partnerships, such as entities referred to as structured finance or special purpose entities, which are established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes. As such, we are not materially exposed to any financing, liquidity, market, or credit risk that could arise if we had engaged in these relationships.

Recent Accounting Pronouncements

For a discussion of recent accounting pronouncements, refer to Note 2, *Summary of Significant Accounting Policies*, to our consolidated financial statements in our Annual Report.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Interest Rate Risk

We invest our excess cash in investment-grade, interest-bearing securities. The primary objective of our investment activities is to preserve principal and liquidity. To achieve this objective, we invest in money market funds, municipal bonds, and government sponsored enterprises with contractual maturity dates of generally less than one year. All investment securities have a credit rating of at least Aa3/AA- or better, or P-1/A-1 or better, as determined by Moody's Investors Service or Standard & Poor's. We do not have any direct investments in auction-rate securities or securities that are collateralized by assets that include mortgages or subprime debt. If a 10 percent change in interest rates were to have occurred on June 30, 2023, this change would not have had a material effect on the fair value of our investment portfolio as of that date. Although we are seeing, and expect to continue to see, increased interest rates, due to our investment in investment-grade, interest-bearing securities, as of the date of this Quarterly Report on Form 10-Q, we do not expect anticipated changes in interest rates to have a material effect on our interest rate risk in future reporting periods.

ITEM 4. CONTROLS AND PROCEDURES

We maintain disclosure controls and procedures that are designed to ensure that information required to be disclosed in our periodic and current reports that we file with the SEC is recorded, processed, summarized, and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer (our principal executive officer and principal financial officer, respectively), as appropriate, to allow timely decisions regarding required disclosure. In designing and evaluating the disclosure controls and procedures, management recognized that any controls and procedures, no matter how well designed and operated, can provide only reasonable and not absolute assurance of achieving the desired control objectives. In reaching a reasonable level of assurance, management necessarily was required to apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures. In addition, the design of any system of controls is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions; over time, controls may become inadequate because of changes in conditions, or the degree of compliance with policies or procedures may deteriorate. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

As of June 30, 2023, we carried out an evaluation, under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer (our principal executive officer and principal financial officer, respectively), of the effectiveness of the design and operation of our disclosure controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended. Based on this evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective at the reasonable assurance level as of June 30, 2023.

An evaluation was also performed under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer (our principal executive officer and principal financial officer, respectively), of any change in our internal control over financial reporting that occurred during our last fiscal quarter and that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting. That evaluation did not identify any changes in our internal control over financial reporting that occurred during our latest fiscal quarter that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

The information required to be set forth under this Item 1 is incorporated by reference to the section titled “Legal Proceedings” in Note 9 to the condensed consolidated financial statements included in this Quarterly Report.

ITEM 1A. RISK FACTORS

You should consider carefully the following information about the risks described below, together with the other information contained in this Quarterly Report and in our other public filings in evaluating our business. The risk factors set forth below that are marked with an asterisk (*) did not appear as separate risk factors in, or contain changes to the similarly titled risk factor included in, Item 1A of our Annual Report. If any of the following risks actually occurs, our business, financial condition, results of operations, and future growth prospects would likely be materially and adversely affected. In these circumstances, the market price of our common stock would likely decline.

Summary Risk Factors

We face risks and uncertainties related to our business, many of which are beyond our control. In particular, risks associated with our business include:

- Our prospects are highly dependent on the continued successful commercialization of NUPLAZID and the successful commercialization of DAYBUE. To the extent we cannot maintain or increase sales of NUPLAZID or successfully launch DAYBUE, our business, financial condition and results of operations may be materially adversely affected and the price of our common stock may decline.
- The terms of the FDA’s approval of NUPLAZID for the treatment of hallucinations and delusions associated with PDP may limit its commercial potential. Additionally, NUPLAZID is still subject to an ongoing post-marketing commitment.
- We rely on a limited internal commercial team and a limited network of third-party distributors and pharmacies to market and sell NUPLAZID and DAYBUE. If this approach ceases to be effective, our commercialization of NUPLAZID and DAYBUE may be adversely affected, and NUPLAZID and DAYBUE may not be profitable.
- If we do not obtain regulatory approval of pimavanserin for other indications in addition to treatment of PDP in the U.S., we will not be able to market pimavanserin for other indications in the U.S., which will limit our commercial revenues.
- If we are unable to effectively train and equip our sales force, our ability to successfully commercialize NUPLAZID and DAYBUE will be harmed.
- NUPLAZID and DAYBUE may not gain maximal acceptance among physicians, patients, and the medical community, thereby limiting our potential to generate revenues.
- Our ability to generate product revenues will be diminished if coverage for our products from payors is decreased or if patients have unacceptably high co-pay amounts.
- Delays, suspensions and terminations in our clinical trials could result in increased costs to us and delay our ability to generate product revenues.
- If we are unable to attract, retain, and motivate key management, research and development, and sales and marketing personnel, our drug development programs, our research and discovery efforts, and our commercialization plans may be delayed and we may be unable to successfully commercialize our products, or develop our product candidates.
- We expect our net losses to continue for the next few years and are unable to predict the extent of future losses or when we will become profitable, if ever.
- If we fail to obtain the capital necessary to fund our operations, we will be unable to successfully continue the development and commercialization of NUPLAZID and DAYBUE or successfully develop and commercialize our other product candidates.
- We expect that our results of operations will fluctuate, which may make it difficult to predict our future performance from period to period.
- Unfavorable global economic conditions could adversely affect our business, financial condition or results of operations.

- Public health threats have impacted our clinical trials and could have an adverse effect on our operations and financial results, or may cause us to modify or suspend our financial guidance.
- We previously have depended, and in the future may depend, on collaborations with third parties to develop and commercialize selected product candidates other than pimavanserin, and we have limited control over how those third parties conduct development and commercialization activities for such product candidates.
- We currently depend, and in the future will continue to depend, on third parties to manufacture NUPLAZID, DAYBUE and any other product candidates. If these manufacturers fail to provide us or our collaborators with adequate supplies of clinical trial materials and commercial product or fail to comply with the requirements of regulatory authorities, we may be unable to develop or commercialize NUPLAZID, DAYBUE or any other product candidates.
- If we fail to comply with the obligations in agreements under which we license intellectual property rights from third parties, we could lose license rights to certain of our product candidates.
- Our ability to compete may decline if we do not adequately protect our proprietary rights.
- Healthcare reform measures may negatively impact our ability to sell NUPLAZID, DAYBUE or our product candidates, if approved, profitably.
- If our competitors develop and market products that are more effective than NUPLAZID, DAYBUE or our other product candidates, they may reduce or eliminate our commercial opportunity.
- Our stock price historically has been, and is likely to remain, highly volatile.

Risks Related to Our Business

Our prospects are highly dependent on the continued successful commercialization of NUPLAZID and the successful commercialization of DAYBUE. To the extent we cannot maintain or increase sales of NUPLAZID or successfully launch DAYBUE, our business, financial condition and results of operations may be materially adversely affected and the price of our common stock may decline.*

In March 2023, we announced FDA approval of DAYBUE for the treatment of Rett syndrome in adult and pediatric patients two years of age and older, and DAYBUE became available for prescription in the United States in April 2023. NUPLAZID has been approved for the treatment of hallucinations and delusions associated with PDP, in the U.S. since April 2016.

The successful commercialization of NUPLAZID and DAYBUE is subject to many risks, and there is no guarantee that we will be able to maintain or increase sales of NUPLAZID and successfully launch DAYBUE. There are numerous examples of failures to meet high expectations of market potential, including by pharmaceutical companies with more experience and resources than us. While we have established our commercial team and have hired our U.S. sales force, we may need to further expand and develop the team in order to successfully commercialize NUPLAZID and DAYBUE for additional indications. Even if we are successful in developing our commercial team, there are many factors that could negatively impact the sales of our products or cause the continued commercialization of our products to be unsuccessful, including a number of factors that are outside our control. The continued commercial success of NUPLAZID currently depends on the extent to which patients, caregivers and physicians recognize and diagnose PDP and accept and adopt NUPLAZID as a treatment for hallucinations and delusions associated with PDP, and we do not know whether our or others' estimates in this regard will be accurate. We have changed, and may continue to change, the price of NUPLAZID from time to time. Physicians may not prescribe NUPLAZID and patients may be unwilling to use NUPLAZID if coverage is not provided, coverage changes in the future or reimbursement is inadequate to cover a significant portion of the cost. Similarly, the successful commercial launch of DAYBUE currently depends on the extent to which patients, caregivers and physicians recognize and diagnose Rett syndrome and accept and adopt DAYBUE as a treatment for Rett syndrome, and we do not know whether our or others' estimates in this regard will be accurate. Physicians may not prescribe DAYBUE and patients may be unwilling to use DAYBUE if coverage is not provided, coverage changes in the future or reimbursement is inadequate to cover a significant portion of the cost. While we have established our commercial team and have hired our U.S. sales force for DAYBUE, we may need to further expand and develop the team in order to successfully commercialize DAYBUE. Thus, significant uncertainty remains regarding the commercial potential of DAYBUE.

Additionally, any negative publicity related to NUPLAZID or DAYBUE, or negative development for NUPLAZID or DAYBUE in our post-marketing commitments, in clinical development in additional indications, or in regulatory processes in other jurisdictions, may adversely impact our commercial results and potential of NUPLAZID or DAYBUE. Thus, significant uncertainty remains regarding the commercial potential of NUPLAZID and DAYBUE.

If the commercialization of our products and future sales are less successful than expected or perceived as disappointing, our stock price could decline significantly and the long-term success of our products and our company could be harmed.

The terms of the FDA's approval of NUPLAZID for the treatment of hallucinations and delusions associated with PDP may limit its commercial potential. Additionally, NUPLAZID is still subject to an ongoing post-marketing commitment.

The scope and terms of the FDA's approval of NUPLAZID may limit our ability to commercialize NUPLAZID and, therefore, our ability to generate substantial sales revenues. The FDA has approved NUPLAZID only for the treatment of hallucinations and delusions associated with PDP. The label for NUPLAZID also contains a "boxed" warning that elderly patients with dementia-related psychosis (DRP) treated with antipsychotic drugs are at an increased risk of death, and that NUPLAZID is not approved for the treatment of patients with DRP unrelated to the hallucinations and delusions associated with PDP. This "boxed" warning may discourage physicians from prescribing NUPLAZID to patients diagnosed with PDP, including those with dementia.

In connection with the FDA approval, we agreed to four post-marketing commitments (PMCs): (i) a randomized withdrawal trial of pimavanserin 34 mg/day compared to placebo, (ii) a placebo-controlled trial (or trials) of pimavanserin 34 mg/day for eight weeks in at least 500 predominantly frail and elderly subjects, (iii) a drug-drug interaction study to measure the effect of a strong CYP3A4 inducer on the exposure to pimavanserin, and (iv) re-analysis of tissue samples from certain previously conducted preclinical studies. We have fulfilled three PMCs; the PMC covering a trial (or trials) in frail and elderly subjects is in process and expected to be completed in accordance with the timeline agreed with the FDA. Failure to complete the remaining PMC may result in regulatory action by the FDA. The results of any post-marketing study may cause the FDA to update the label and/or cause the FDA to request additional studies or require risk mitigation plans.

The manufacturing processes, labeling, packaging, distribution, adverse event reporting, storage, advertising, promotion and recordkeeping for NUPLAZID will also continue to be subject to extensive and ongoing regulatory requirements. These requirements include submissions of safety and other post-marketing information and reports, registration, as well as continued compliance with cGMPs, good clinical practices, international council for harmonization guidelines and good laboratory practices, each of which are regulations and guidelines enforced by the FDA for all of our nonclinical and clinical development and for any clinical trials that we conduct post-approval.

Discovery of any issues post-approval, including any safety concerns, such as unexpected side effects or drug-drug interaction problems, adverse events of unanticipated severity or frequency, or concerns over misuse or abuse of the product, problems with the facilities where the product is manufactured, packaged or distributed, or failure to comply with regulatory requirements, may result in, among other things, restrictions on NUPLAZID or on us, including:

- withdrawal of approval, addition of warnings or narrowing of the approved indication in the product label;
- requirement of a Risk Evaluation and Mitigation Strategy to mitigate the risk of off-label use in populations where the FDA may believe that the potential risks of use may outweigh its benefits;
- voluntary or mandatory recalls;
- warning letters;
- suspension of any ongoing clinical studies;
- refusal by the FDA or other regulatory authorities to approve pending applications or supplements to approved applications filed by us, or suspension or revocation of product approvals;
- restrictions on operations, including restrictions on the marketing or manufacturing of the product or the imposition of costly new manufacturing requirements; or
- seizure or detention, or refusal to permit the import or export of products.

If any of these actions were to occur, we may have to discontinue the commercialization of NUPLAZID, limit our sales and marketing efforts, conduct further post-approval studies, and/or discontinue or change any other ongoing or planned clinical studies, which in turn could result in significant expense and delay or limit our ability to generate sales revenues.

NUPLAZID and DAYBUE have only been studied in a limited number of patients. As we commercialize NUPLAZID and DAYBUE, they are becoming available to a much larger number of patients, and we do not know whether the results of NUPLAZID and DAYBUE use in such larger number of patients will be consistent with the results from our clinical studies.*

Prior to commencing their commercial launch, NUPLAZID and DAYBUE were administered only to a limited number of patients in clinical studies. We do not know whether the results, when a larger number of patients are exposed to NUPLAZID and DAYBUE, including results related to safety and efficacy, will be consistent with the results from the clinical studies of NUPLAZID and DAYBUE that served as the basis for their approval. New data relating to NUPLAZID and DAYBUE, including from adverse event reports and applicable post-marketing studies in the U.S., and from other ongoing clinical studies, may result in changes to the product label and may adversely affect sales, or result in withdrawal of NUPLAZID or DAYBUE from the market. The FDA and regulatory authorities in other jurisdictions may also consider the new data in reviewing NUPLAZID or DAYBUE marketing applications for indications other than in PDP or Rett syndrome, respectively, and/or in other jurisdictions, or impose additional post-approval requirements. If any of these actions were to occur, it could result in significant expense and delay or limit our ability to generate sales revenues.

We rely on a limited internal commercial team and a limited network of third-party distributors and pharmacies to market and sell NUPLAZID and DAYBUE. If this approach ceases to be effective, our commercialization of NUPLAZID and DAYBUE may be adversely affected, and NUPLAZID and DAYBUE may not be profitable.*

We employ our own internal specialty sales force to commercialize NUPLAZID and DAYBUE as part of our commercialization strategy in the U.S. If we receive marketing approval for pimavanserin or trofinetide in any other indication, we will need to increase our U.S. sales force significantly, and expand our commercial, medical affairs and general and administrative support functions to support commercialization for that indication. We will be competing with other pharmaceutical and biotechnology companies to recruit, hire, train and retain such personnel. These efforts will be expensive and time consuming, and we cannot be certain that we will be able to successfully expand, refine and further develop our sales force and related functional teams.

Additionally, our strategy in the U.S. includes distributing NUPLAZID and DAYBUE solely through a limited network of third-party specialty distributors and specialty pharmacies. While we have entered into agreements with each of these distributors and pharmacies to distribute NUPLAZID and DAYBUE in the U.S., they may not perform as agreed or they may terminate their agreements with us. Also, we may need to enter into agreements with additional distributors or pharmacies, and there is no guarantee that we will be able to do so on commercially reasonable terms or at all. In the event we are unable to maintain, or expand, if needed, our commercial team, including our U.S. sales force, or maintain and, if needed, expand, our network of third-party specialty distributors and specialty pharmacies, our ability to continue commercializing NUPLAZID and DAYBUE would be limited, and NUPLAZID and DAYBUE may not be profitable.

If we do not obtain regulatory approval of pimavanserin for other indications in addition to treatment of PDP in the U.S., we will not be able to market pimavanserin for other indications in the U.S., which will limit our commercial revenues.

While pimavanserin has been approved in the U.S. by the FDA for the treatment of hallucinations and delusions associated with PDP, it has not been approved by the FDA for any other indications, and it has not been approved in any other jurisdiction for this indication or for any other indication. In order to market pimavanserin for other indications or in other jurisdictions, we must obtain regulatory approval for each of those indications and in each of the applicable jurisdictions, and we may never be able to obtain such approval. Approval of NUPLAZID by the FDA for the treatment of hallucinations and delusions associated with PDP does not ensure that NUPLAZID will be approved by the FDA for any other indication. For example, following the successful completion of our Phase 3 HARMONY study, we submitted an sNDA to the FDA for the treatment of DRP on June 3, 2020. On April 2, 2021, we received a complete response letter (CRL) from the FDA, indicating that the FDA had completed its review of the application and determined that it could not be approved in its present form. In February 2022, we resubmitted the aforementioned sNDA refining the proposed indication to treatment of hallucinations and delusions associated with ADP. On August 4, 2022 we received a CRL from the FDA regarding our ADP sNDA resubmission. At this time, we are not planning to conduct any additional studies for pimavanserin in ADP.

We initiated a Phase 3 program for pimavanserin as an adjunctive treatment for major depressive disorder (MDD) in April 2019. In July 2020, we announced that our Phase 3 CLARITY study, which combined two identical, double-blind, placebo-controlled studies, did not achieve statistical significance on the primary endpoint. As a result, at this time we do not plan on initiating any additional Phase 3 studies to evaluate pimavanserin for adjunctive use with selective serotonin reuptake inhibitor (SSRI)/ serotonin-norepinephrine reuptake inhibitor (SNRI) drugs for the treatment of MDD.

We initiated the Phase 3 ADVANCE-2 study of pimavanserin for the treatment of the negative symptoms of schizophrenia in August 2020. We completed the enrollment with top-line results expected inthe firest quarter of 2024. There is no guarantee that our

ongoing study will be successful, or that the FDA or any regulatory authority in foreign jurisdictions will approve pimavanserin for that indication.

The research, testing, manufacturing, labeling, approval, sale, import, export, marketing, and distribution of pharmaceutical product candidates are subject to extensive regulation by the FDA and other regulatory authorities in the U.S. and other countries, whose regulations differ from country to country. We will be required to comply with different regulations and policies of the jurisdictions where we seek approval for our product candidates, and we have not yet identified all of the requirements that we will need to satisfy to submit NUPLAZID for approval for other indications or in other jurisdictions. This will require additional time, expertise and expense, including the potential need to conduct additional studies or development work for other jurisdictions beyond the work that we have conducted to support our NDA submission in PDP. If we do not receive marketing approval for NUPLAZID for any other indication, we will never be able to commercialize NUPLAZID for any other indication in the U.S. Even if we do receive additional regulatory approvals, we may not be successful in commercializing those opportunities.

If the results or timing of regulatory filings, the regulatory process, regulatory developments, clinical trials or preclinical studies, or other activities, actions or decisions related to NUPLAZID do not meet our or others' expectations, the market price of our common stock could decline significantly and the long-term success of the product and our company could be harmed.

If we are unable to effectively train and equip our sales force, our ability to successfully commercialize NUPLAZID and DAYBUE will be harmed.*

NUPLAZID is the first drug approved by the FDA for the treatment of hallucinations and delusions associated with PDP, and DAYBUE is the first drug approved by the FDA for the treatment of Rett syndrome. As a result, we are and will continue to be required to expend significant time and resources to train our sales force to be credible, persuasive, and compliant with applicable laws in marketing NUPLAZID and DAYBUE to neurologists, psychiatrists, pharmacists, physicians in long-term care facilities and other healthcare providers, as appropriate. In addition, we must ensure that consistent and appropriate messages about NUPLAZID and DAYBUE are being delivered to our potential customers by our sales force. If we are unable to effectively train our sales force and equip them with current, effective materials, including medical and sales literature to help them inform and educate potential customers about the benefits of NUPLAZID and DAYBUE, and their proper administration, our efforts to successfully commercialize NUPLAZID and DAYBUE, could be put in jeopardy, which would negatively impact our ability to generate product revenues.

NUPLAZID and DAYBUE may not gain maximal acceptance among physicians, patients, and the medical community, thereby limiting our potential to generate revenues.*

The degree of market acceptance by physicians, healthcare professionals and third-party payors of NUPLAZID, DAYBUE and any other product for which we obtain regulatory approval, and our profitability and growth, will depend on a number of factors, including:

- the ability to provide acceptable evidence of safety and efficacy;
- the scope of the approved indication(s) for the product;
- the inclusion of any warnings or contraindications in the product label;
- the relative convenience and ease of administration;
- the prevalence and severity of any adverse side effects;
- the availability of alternative treatments;
- the willingness of the target patient population to try new therapies and of physicians to prescribe these therapies, and our ability to increase awareness of our approved products through marketing efforts;
- pricing and cost effectiveness, which may be subject to regulatory control;
- effectiveness of our or our collaborators' sales and marketing strategy;
- publicity concerning us, our products or competing products and treatments; and
- our ability to obtain and maintain sufficient third-party insurance coverage or adequate reimbursement levels.

If a product does not provide a treatment regimen that is at least as beneficial as the current standard of care or otherwise does not provide patient benefit, that product will not achieve market acceptance and will not generate sufficient revenues to achieve or maintain profitability.

With respect to NUPLAZID specifically, successful commercialization will depend on whether and to what extent physicians, long-term care facilities and pharmacies, over whom we have no control, determine to utilize NUPLAZID. NUPLAZID is available to treat hallucinations and delusions associated with PDP, an indication for which no other FDA-approved pharmaceutical treatment currently exists. Because of this, it is particularly difficult to estimate NUPLAZID's market potential and how physicians, payors and patients will respond to changes in the price of NUPLAZID. Additionally, the growth of NUPLAZID net sales was negatively impacted due to the COVID-19 pandemic. Industry sources and analysts have a divergence of estimates for the near- and long-term market potential of NUPLAZID, and a variety of assumptions directly impact the estimates for NUPLAZID's market potential, including assumptions regarding the prevalence of PDP, the rate of diagnosis of PDP, the prevalence and rate of hallucinations and delusions in patients diagnosed with PDP, the rate of physician adoption of NUPLAZID, the potential impact of payor restrictions regarding NUPLAZID, and patient adherence and compliance rates. Small differences in these assumptions can lead to widely divergent estimates of the market potential of NUPLAZID. For example, certain research suggests that patients with Parkinson's disease may be hesitant to report symptoms of PDP to their treating physicians for a variety of reasons, including apprehension about societal stigmas relating to mental illness. Research also suggests that physicians who typically treat patients with Parkinson's disease may not ask about or identify symptoms of PDP. For these reasons, even if PDP occurs in high rates among patients with Parkinson's disease, it may be underdiagnosed. Even if PDP is diagnosed, physicians may not prescribe treatment for hallucinations and delusions associated with PDP, and if they do prescribe treatment, they may prescribe other drugs, even though they are not approved in PDP, instead of NUPLAZID. In addition, even if NUPLAZID is prescribed for the treatment of hallucinations and delusions associated with PDP, issues may arise with respect to patient adherence and compliance rates. If patients do not adhere to the recommended dosing of NUPLAZID, patients and physicians may believe that NUPLAZID is less effective, and as a result they may stop taking it and prescribing it.

The label for NUPLAZID also contains a "boxed" warning that elderly patients with DRP treated with antipsychotic drugs are at an increased risk of death, and that NUPLAZID is not approved for the treatment of patients with DRP unrelated to the hallucinations and delusions associated with PDP. There has also been attention to publicly reported deaths of patients that were prescribed NUPLAZID, and the FDA conducted an evaluation of available information about NUPLAZID. On September 20, 2018 the FDA issued a statement concluding: "The U.S. FDA has completed a review of all post marketing reports of deaths and serious adverse events (SAEs) reported with the use of NUPLAZID. Based on an analysis of all available data, FDA did not identify any new or unexpected safety findings with NUPLAZID, or findings that are inconsistent with the established safety profile currently described in the drug label. After a thorough review, FDA's conclusion remains unchanged that the drug's benefits outweigh its risks for patients with hallucinations and delusions of Parkinson's disease psychosis." Although the FDA did not identify any new or unexpected safety risks, the FDA indicated that some potentially concerning prescribing patterns were observed, such as the concomitant use of other antipsychotic drugs or drugs that can cause QT prolongation, a potential cause of heart rhythm disorder. The FDA reminded healthcare providers to be aware of the risks described in the NUPLAZID prescribing information and that none of the other antipsychotic medications are approved for the treatment of PDP. Regardless, perceptions that NUPLAZID is unsafe, even if unfounded, may discourage physicians from prescribing or patients from taking NUPLAZID.

The commercial success of NUPLAZID and DAYBUE depends on acceptance by patients, caregivers and physicians, and there are a number of factors that could skew our or others' estimates about prescribing behaviors and market adoption. If we fail to gain the acceptance of patients, caregivers and physicians, or if our estimates are inaccurate, these events could negatively impact our business, results of operations, financial condition and prospects.

Our ability to generate product revenues will be diminished if coverage for our products from payors is decreased or if patients have unacceptably high co-pay amounts.*

Patients who are prescribed medicine for the treatment of their conditions generally rely on third-party payors, including governmental healthcare programs, such as Medicare and Medicaid, managed care organizations and commercial payors, among others, to reimburse all or part of the costs associated with their prescription drugs. Coverage and adequate reimbursement from third-party payors is critical to product acceptance. Coverage decisions may depend upon clinical and economic standards that disfavor drug products when lower cost therapeutic alternatives are already available or subsequently become available. Even with coverage for NUPLAZID, DAYBUE or other products we may market, the resulting reimbursement payment rates might not be adequate or may require co-payments that patients find unacceptably high. Patients may not use NUPLAZID and DAYBUE if coverage is not provided or reimbursement is inadequate to cover a significant portion of its cost.

In addition, the market for NUPLAZID and DAYBUE depends significantly on access to third-party payors' drug formularies, or lists of medications for which third-party payors provide coverage and reimbursement. The industry competition to be included in such formularies often leads to downward pricing pressures on pharmaceutical companies. Also, 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 alternative is available, even if not approved for the indication for which NUPLAZID and DAYBUE are approved.

Third-party payors, whether governmental or commercial, are developing increasingly sophisticated methods of controlling healthcare costs. The current environment is putting pressure on companies to price products below what they may feel is appropriate. Selling NUPLAZID or DAYBUE at less than an optimized price would impact our revenues and could impact our overall success as a company. We have changed, and may continue to change, the price of NUPLAZID or DAYBUE from time to time, however, we do not know if the price we have selected, or may select in the future, for NUPLAZID or DAYBUE is or will be the optimized price. Additionally, we do not know whether and to what extent third-party payors will react to any possible future changes in the price of NUPLAZID or DAYBUE. In the U.S., no uniform policy of coverage and reimbursement for drug products exists among third-party payors. Further, one payor's determination to provide coverage and reimbursement for a product does not ensure that other payors will also provide coverage and reimbursement for the product. Therefore, coverage and reimbursement for NUPLAZID and DAYBUE may differ significantly from payor to payor. As a result, the coverage determination process is often a time-consuming and costly process that will require us to provide scientific and clinical support for the use of NUPLAZID and DAYBUE to each payor separately, with no assurance that coverage will be obtained. Coverage policies and third-party payor reimbursement rates may change at any time. Therefore, even if favorable coverage and reimbursement status is attained, less favorable coverage policies and reimbursement rates may be implemented in the future. If we are unable to obtain coverage of, and adequate payment levels for, NUPLAZID, DAYBUE or any other products we may market to third-party payors, physicians may limit how much or under what circumstances they will prescribe or administer them and patients may decline to purchase them. This in turn could affect our ability to successfully commercialize NUPLAZID, DAYBUE or any other products we may market, and thereby adversely impact our profitability, results of operations, financial condition, and future success.

We are solely responsible for the development and commercialization of pimavanserin and trofinetide.*

We have full responsibility for the pimavanserin and trofinetide programs throughout the world. We expect our research and development costs for continued development of pimavanserin and trofinetide to be substantial. We are currently undertaking ongoing development work for pimavanserin, including clinical trials of pimavanserin for indications other than in PDP, and trofinetide. In the event of approval for additional indications or in jurisdictions outside the U.S., we would need to add significant resources, and possibly raise additional capital, in order to further commercialize pimavanserin and trofinetide, and to conduct the necessary sales and marketing activities, and to conduct further development activities.

With respect to NUPLAZID, our current strategy is to continue to commercialize NUPLAZID for the treatment of hallucinations and delusions associated with PDP in the U.S. using our specialty sales force focused primarily on neurologists, a small group of psychiatrists, and pharmacists and physicians in long-term care facilities who treat PDP patients. If we are approved to commercialize NUPLAZID in markets outside of the U.S., we may need to establish one or more strategic alliances in the future for that purpose. Without future additional resources or collaboration partners in the U.S. and abroad, we might not be able to realize the full value of NUPLAZID.

Furthermore, even though NUPLAZID is approved for the treatment of hallucinations and delusions associated with PDP, a failure in a subsequent pimavanserin study for another indication, including our ongoing study in schizophrenia, or any additional studies, or a failure in our post-marketing studies could harm our ability to successfully market NUPLAZID for the treatment of hallucinations and delusions associated with PDP or could lead to it being withdrawn from the market. Similarly, even though DAYBUE is approved for the treatment of Rett syndrome in adult and pediatric patients two years of age and older, a failure in a subsequent trofinetide study for another indication or any additional studies could harm our ability to successfully market DAYBUE for the treatment of Rett syndrome in adult and pediatric patients two years of age and older or could lead to it being withdrawn from the market.

If we are unable to develop pimavanserin or trofinetide for other indications or in other jurisdictions, we may not be able to maximize the potential of the compounds and that could have a material adverse effect on our future revenues and our success as a company.

Drug development is a long, expensive and unpredictable process with a high risk of failure.

Preclinical testing and clinical trials are long, expensive and unpredictable processes that can be subject to delays. It may take several years to complete the preclinical testing and clinical development necessary to commercialize a drug, and delays or failure can occur at any stage. Preliminary, initial, top-line or interim results of clinical trials do not necessarily predict final results and such results may change as more patient data become available and are subject to audit and verification procedures that could result in material changes in the final results. In addition, success in preclinical testing and early clinical trials does not ensure that later clinical trials will be successful. A number of companies in the pharmaceutical and biotechnology industries have suffered significant setbacks in advanced clinical trials even after promising results in earlier trials.

Our drug development programs are at various stages of development and the historical rate of failures for product candidates is extremely high. In fact, we had an unsuccessful Phase 3 trial with NUPLAZID in 2009. An unfavorable outcome in any of our ongoing or future development efforts or in the post-marketing studies for NUPLAZID could be a major set-back for the program and for us, generally. In particular, an unfavorable outcome in our NUPLAZID program or in the post-marketing studies may require us to delay, devote additional substantial resources to, reduce the scope of, or eliminate this program and could have a material adverse effect on us and the value of our common stock.

In addition, based on positive top-line results from CLARITY, a Phase 2 study evaluating pimavanserin as an adjunctive treatment for MDD, we initiated our Phase 3 CLARITY program, consisting of two Phase 3 studies, CLARITY-2 and CLARITY-3, evaluating pimavanserin as an adjunctive treatment with SSRI/SNRI drugs for MDD. Despite the positive results observed in the Phase 2 CLARITY study, our Phase 3 CLARITY study, did not achieve statistical significance on the primary endpoint. In July 2019, we announced top-line results from the Phase 3 ENHANCE study evaluating pimavanserin as a treatment in inadequate response schizophrenia. In this study, pimavanserin did not achieve statistical significance on either the primary endpoint or the key secondary endpoint.

Following the successful completion of our Phase 3 HARMONY study, we submitted an sNDA to the FDA for pimavanserin for the treatment of DRP on June 3, 2020. On April 2, 2021, we received a CRL indicating that the FDA had completed its review of the application and determined that it could not be approved in its present form. In February 2022, we resubmitted the aforementioned DRP sNDA with updated labeling for the treatment of hallucinations and delusions associated with ADP to the FDA based on previously submitted studies and new analyses. On August 4, 2022, we received a CRL from the FDA regarding our submission of the sNDA. At this time, we are not planning to conduct any additional studies for pimavanserin for the treatment of hallucinations and delusions associated with ADP.

We are currently conducting several studies, including early stage studies of an internally-developed compound known as ACP-204, which is akin to pimavanserin, and ACP-101 for the treatment of hyperphagia in Prader-Willi syndrome and may conduct additional studies in the future.

In connection with clinical trials, we face risks that:

- a product candidate may not prove to be efficacious or safe;
- patients may die or suffer other adverse effects for reasons that may or may not be related to the product candidate being tested;
- the results may not be consistent with positive results of earlier trials; and
- the results may not meet the level of statistical significance required by the FDA or other regulatory agencies.

If we do not successfully complete preclinical and clinical development, we will be unable to market and sell products derived from our product candidates and to generate product revenues. Even if we do successfully complete clinical trials, those results are not necessarily predictive of results of additional trials that may be needed before an NDA may be submitted to the FDA. Of the large number of drugs in development, only a small percentage result in the submission of an NDA to the FDA and even fewer are approved for commercialization.

Delays, suspensions and terminations in our clinical trials could result in increased costs to us and delay our ability to generate product revenues.

The commencement of clinical trials can be delayed for a variety of reasons, including delays in:

- demonstrating sufficient safety and efficacy to obtain regulatory approval to commence a clinical trial;
- reaching agreement on acceptable terms with prospective contract research organizations (CROs) and clinical trial sites;
- manufacturing sufficient quantities of a product candidate;
- obtaining clearance from the FDA to commence clinical trials pursuant to an Investigational New Drug application;
- obtaining approval to conduct clinical trials in countries outside the United States pursuant to evolving regional and local regulations (e.g., EU Clinical Trials Regulation (EU No. 536/2014));
- obtaining institutional review board approval to conduct a clinical trial at a prospective clinical trial site; and

- patient recruitment, which is a function of many factors, including the size of the patient population, the nature of the protocol, the proximity of patients to clinical trial sites, the availability of effective treatments for the relevant disease and the eligibility criteria for the clinical trial.

Once a clinical trial has begun, it may be delayed, suspended or terminated due to a number of factors, including:

- competition for internal and external resources, including clinical sites and study patients, that we may choose to allocate to other programs;
- ongoing discussions with regulatory authorities regarding the scope or design of our clinical trials or requests by them for supplemental information with respect to our clinical trial results;
- imposition of clinical holds by regulatory authorities or institutional review boards;
- failure to conduct clinical trials in accordance with regulatory requirements;
- inability to monitor patients adequately during or after treatment;
- difficulty monitoring multiple study sites;
- patient enrollment, which is a function of many factors, including the size of the patient population, the nature of the protocol, the proximity of patients to clinical trial sites, the availability of effective treatments for the relevant disease and the eligibility criteria for the clinical trial;
- lower than anticipated screening or retention rates of patients in clinical trials;
- serious adverse events or side effects experienced by participants; and
- insufficient supply or deficient quality of product candidates or other materials necessary for the conduct of our clinical trials.

In addition, enrollment and retention of patients in, or the ability to receive results from, clinical trials could be disrupted by geopolitical or macroeconomic developments. For example, as a result of the ongoing conflict between Ukraine and Russia, we experienced temporary delays in accessing historical records of certain clinical trial sites located in Russia. Also, as a result of the COVID-19 pandemic, we temporarily paused enrollment of new patients in our ongoing clinical trials, as well as the commencement of new trials. However, we have re-initiated enrollment in clinical trials on a study-by-study and site-by-site basis. It is possible that future enrollment in these studies, or enrollment in future studies, could be impacted due to the same or similar geopolitical or macroeconomic developments. If patients withdraw from our trials, miss scheduled doses or follow-up visits or otherwise fail to follow trial protocols, or if our trial results are otherwise disrupted or disputed due to such developments, the integrity of data from our trials may be compromised or not accepted by the FDA or other regulatory authorities, which would represent a significant setback for the applicable program.

Many of these factors may also ultimately lead to denial of regulatory approval of a current or potential product candidate. If we experience delays, suspensions or terminations in a clinical trial, the commercial prospects for the related product candidate will be harmed, and our ability to generate product revenues will be delayed.

If we are unable to attract, retain, and motivate key management, research and development, and sales and marketing personnel, our drug development programs, our research and discovery efforts, and our commercialization plans may be delayed and we may be unable to successfully commercialize our products, or develop our product candidates.*

Our success depends on our ability to attract, retain, and motivate highly qualified management, scientific, and commercial personnel. In particular, our development programs depend on our ability to attract and retain highly skilled development personnel, especially in the fields of CNS disorders, including neuropsychiatric and related disorders. We are currently hiring, and in the future we expect to need to continue to hire, additional personnel as we expand our research and development efforts for pimavanserin and trofinetide, and commercial activities for NUPLAZID and DAYBUE. We face competition for experienced scientists, clinical operations personnel, commercial and other personnel from numerous companies and academic and other research institutions. Competition for qualified personnel is particularly intense in the San Diego, California area. Many of the other biotechnology and pharmaceutical companies with whom we compete for qualified personnel have greater financial and other resources, different risk profiles and longer histories in the industry than we do. They also may provide more diverse opportunities and better chances for career advancement. Some of these characteristics may be more appealing to high quality candidates than that which we have to offer. If we are unable to continue to attract and retain high quality personnel, the rate and success at which we can develop and commercialize products and product candidates will be limited. If we are unable to attract and retain the necessary personnel, it will

significantly impede our commercialization efforts for NUPLAZID and DAYBUE, and the achievement of our research and development objectives.

All of our employees are "at will" employees, which means that any employee may quit at any time and we may terminate any employee at any time. We do not carry "key person" insurance covering members of senior management.

If we receive approval of NUPLAZID or DAYBUE in additional indications, we may need to continue to increase the size of our organization. We may encounter difficulties with managing our growth, which could adversely affect our results of operations.*

As of June 30, 2023, we employed approximately 540 employees. Our current infrastructure may be inadequate to support our development and commercialization efforts and expected growth. Future growth will impose significant added responsibilities on members of management, including the need to identify, recruit, and integrate additional employees and retain existing employees, and may take time away from running other aspects of our business, including development and commercialization of our product candidates.

Our future financial performance and our ability to commercialize NUPLAZID, DAYBUE and any other product candidates that receive regulatory approval and to compete effectively will depend, in part, on our ability to manage any future growth effectively. In particular, we will need to support the training and ongoing activities of our sales force. To that end, we must be able to:

- manage our development efforts effectively;
- integrate additional management, administrative and manufacturing personnel;
- develop our marketing and sales organization; and
- maintain sufficient administrative, accounting and management information systems and controls.

We may not be able to accomplish these tasks or successfully manage our operations and, accordingly, may not achieve our research, development, and commercialization goals. Our failure to accomplish any of these goals could harm our financial results and prospects.

If we fail to develop, acquire or in-license other product candidates or products, our business and prospects would be limited. Even if we obtain rights to other product candidates or products, we will incur a variety of costs and may never realize the anticipated benefits.*

A key element of our strategy is to develop, acquire or in-license businesses, technologies, product candidates or products that we believe are a strategic fit with our business. The success of this strategy depends in large part on the combination of our regulatory, development and commercial capabilities and expertise and our ability to identify, select and acquire or in-license clinically-enabled product candidates for the treatment of neurological disorders, or for therapeutic indications that complement or augment our current product candidates, or that otherwise fit into our development or strategic plans on terms that are acceptable to us. Identifying, selecting and acquiring or in-licensing promising product candidates requires substantial technical, financial and human resources expertise, and we have limited experience in identifying acquisition targets, successfully completing proposed acquisitions and integrating any acquired businesses, technologies, services or products into our current infrastructure. Efforts to do so may not result in the actual acquisition or in-license of a particular product candidate, potentially resulting in a diversion of our management's time and the expenditure of our resources with no resulting benefit. If we are unable to identify, select and acquire or license suitable product candidates from third parties on terms acceptable to us, our business and prospects will be limited. In particular, if we are unable to add additional commercial products to our portfolio, we may not be able to successfully leverage our commercial organization that we have assembled for the marketing and sale of NUPLAZID and DAYBUE.

The process of integrating any acquired business, technology, service, or product may result in unforeseen operating difficulties and expenditures and may divert significant management attention from our ongoing business operations. As a result, we will incur a variety of costs in connection with an acquisition and may never realize its anticipated benefits. Moreover, any product candidate we identify, select and acquire or license may require additional, time-consuming development or regulatory efforts prior to commercial sale, including preclinical studies, if applicable, and extensive clinical testing and approval by the FDA and applicable foreign regulatory authorities. All product candidates are prone to the risk of failure that is inherent in pharmaceutical product development, including the possibility that the product candidate will not be shown to be sufficiently safe and/or effective for approval by regulatory authorities. In addition, we cannot assure you that any such products that are approved will be manufactured or produced economically, successfully commercialized or widely accepted in the marketplace or be more effective or desired than other commercially available alternatives.

In addition, if we fail to successfully commercialize and further develop NUPLAZID, DAYBUE or other product candidates, there is a greater likelihood that we will fail to successfully develop a pipeline of other product candidates, and our business and prospects would therefore be harmed.

Our net losses may continue for the next few years and we are unable to predict the extent of future losses or when we will become profitable, if ever.*

We have experienced significant net losses since our inception. As of June 30, 2023, we had an accumulated deficit of approximately $2.4 billion. We may incur net losses over the next few years as we expect to invest in the commercialization of NUPLAZID and DAYBUE and advance our development programs, including developing additional internal systems and infrastructure and hiring additional personnel. We also expect such investments and advancements will increase our expenses in the coming years. Thus, our future operating results and profitability may fluctuate from period to period, and we will need to generate significant revenues to achieve and maintain profitability and positive cash flow on a sustained basis.

We expect that our revenues over the next few years will be entirely dependent on our ability to generate product sales. Substantially all of our revenues since May 2016 were from net product sales of NUPLAZID. To the extent that we cannot generate significant revenues from the sale of NUPLAZID and DAYBUE to cover our expenses, including the significant expenses associated with commercializing NUPLAZID and DAYBUE and continuing to develop pimavanserin and trofinetide in additional indications, we may never achieve profitability and/or may have to reduce our commercialization and/or research and development activities to become profitable, which would harm our future growth prospects. Additionally, to obtain revenues from product candidates other than NUPLAZID and DAYBUE, we must succeed, either alone or with others, in developing, obtaining regulatory approval for, manufacturing and marketing compounds with significant market potential. We may never succeed in these activities and may never generate revenues that are significant enough to achieve profitability.

If we fail to obtain the capital necessary to fund our operations, we will be unable to successfully continue the development and commercialization of NUPLAZID and DAYBUE or successfully develop and commercialize our other product candidates.*

We have consumed substantial amounts of capital since our inception. Our cash, cash equivalents, and investment securities totaled $375.4 million at June 30, 2023. While we believe that our existing cash resources will be sufficient to fund our cash requirements through at least the next twelve months, we may require significant additional financing in the future to continue to fund our operations. Our future capital requirements will depend on, and could increase significantly as a result of, many factors including:

- the progress in, and the costs of, our ongoing and planned development activities for pimavanserin and trofinetide, post-marketing studies for NUPLAZID to be conducted over the next several years, ongoing and planned commercial activities for NUPLAZID and DAYBUE;
- the costs of our development activities for our early-stage pipeline programs and any other product candidates;
- the costs of commercializing NUPLAZID and DAYBUE, including the maintenance and development of our sales and marketing capabilities;
- the costs of establishing, or contracting for, sales and marketing capabilities for other product candidates;
- the amount of U.S. product sales from NUPLAZID and DAYBUE;
- the costs of preparing applications for regulatory approvals for NUPLAZID in jurisdictions other than the U.S., and in additional indications other than in PDP, and for DAYBUE and other product candidates, as well as the costs required to support review of such applications;
- the costs of manufacturing and distributing NUPLAZID and DAYBUE for commercial use in the U.S.;
- our ability to obtain regulatory approval for, and subsequently generate product sales from, NUPLAZID in jurisdictions other than the U.S. or in additional indications other than in PDP, or from DAYBUE, our early-stage pipeline programs and any other product candidates;
- the costs of acquiring additional product candidates or research and development programs;
- the scope, prioritization and number of our research and development programs;
- the ability of our collaborators and us to reach the milestones and other events or developments triggering payments under our collaboration or license agreements, or our collaborators' ability to make payments under these agreements;
- our ability to enter into new collaboration and license agreements;

- the extent to which we are obligated to reimburse collaborators or collaborators are obligated to reimburse us for costs under collaboration agreements;
- the costs involved in filing, prosecuting, enforcing, and defending patent claims and other intellectual property rights;
- the costs of maintaining or securing manufacturing arrangements and supply for clinical or commercial production of pimavanserin, trofinetide or other product candidates; and
- the costs associated with litigation, including the costs incurred in defending against any product liability claims that may be brought against us related to NUPLAZID and DAYBUE.

Unless and until we can generate significant cash from our operations, we expect to satisfy our future cash needs through our existing cash, cash equivalents and investment securities, strategic collaborations, public or private sales of our securities, debt financings, grant funding, or by licensing all or a portion of our product candidates or technology. In the past, periods of turmoil and volatility in the financial markets have adversely affected the market capitalizations of many biotechnology companies, and generally made equity and debt financing more difficult to obtain. For example, as a result of geopolitical and macroeconomic developments, including recent and potential future disruptions in access to bank deposits or lending commitments due to bank failures, the ongoing conflict between Ukraine and Russia, related sanctions, the COVID-19 pandemic and actions taken to slow its spread, the global credit and financial markets have experienced extreme volatility and disruptions, including diminished liquidity and credit availability, declines in consumer confidence, declines in economic growth, increases in unemployment rates and uncertainty about economic stability. These events, coupled with other factors, may limit our access to additional financing in the future. This could have a material adverse effect on our ability to access sufficient funding. We cannot be certain that additional funding will be available to us on acceptable terms, or at all. If funds are not available, we will be required to delay, reduce the scope of, or eliminate one or more of our research or development programs or our commercialization efforts. We also may be required to relinquish greater or all rights to product candidates at an earlier stage of development or on less favorable terms than we would otherwise choose. Additional funding, if obtained, may significantly dilute existing stockholders and could negatively impact the price of our stock.

We expect that our results of operations will fluctuate, which may make it difficult to predict our future performance from period to period.*

Our operating results have fluctuated in the past and are likely to do so in future periods. Some of the factors that could cause our operating results to fluctuate from period to period include:

- the success of our commercialization of NUPLAZID in the U.S. for the treatment of hallucinations and delusions associated with PDP and DAYBUE in the U.S. for the treatment of Rett syndrome;
- the impact of geopolitical and macroeconomic developments, such as recent and potential future bank failures, general political, health and economic conditions, including the Ukraine-Russia conflict, COVID-19, economic slowdowns, recessions, inflation, rising interest rates and tightening of credit markets on our business;
- the status and cost of our post-marketing commitments for NUPLAZID;
- the variation in our gross-to-net adjustments from quarter to quarter, primarily because of the fluctuation in our share of the donut hole for Medicare Part D patients;
- the status and cost of development and commercialization of pimavanserin for indications other than for the treatment of hallucinations and delusions associated with PDP, and the status and cost of development and commercialization of trofinetide for indications other than for the treatment of Rett syndrome;
- the status and cost of development and commercialization of our product candidates, including compounds being developed under our collaborations;
- whether we acquire or in-license additional product candidates or products, and the status of development and commercialization of such product candidates or products;
- whether we generate revenues or reimbursements by achieving specified research, development or commercialization milestones under any agreements or otherwise receive potential payments under these agreements;
- whether we are required to make payments due to achieving specified milestones under any licensing or similar agreements or otherwise make payments under these agreements;
- the incurrence of preclinical or clinical expenses that could fluctuate significantly from period to period, including reimbursement obligations pursuant to our collaboration agreements;
- the initiation, termination, or reduction in the scope of our collaborations or any disputes regarding these collaborations;

- the timing of our satisfaction of applicable regulatory requirements;
- the rate of expansion of our clinical development, other internal research and development efforts, and pre-commercial and commercial efforts;
- the effect of competing technologies and products and market developments;
- the costs associated with litigation, including the costs incurred in defending against any product liability claims that may be brought against us related to NUPLAZID or DAYBUE; and
- general and industry-specific economic conditions.

We believe that comparisons from period to period of our financial results are not necessarily meaningful and should not be relied upon as indications of our future performance.

From time to time, we provide guidance relating to our expectations for net sales of NUPLAZID and DAYBUE and certain expense line items based on estimates and the judgment of management. If, for any reason, our actual net sales or expenses differ materially from our guidance, we may have to revise our previously announced financial guidance. If we change, update or fail to meet any element of such guidance, our stock price could decline.

Changes in tax laws or regulations that are applied adversely to us or our customers may have a material adverse effect on our business, cash flow, financial condition or results of operations.*

New income, sales, use or other tax laws, statutes, rules, regulations or ordinances could be enacted at any time, which could adversely affect our business operations and financial performance. Further, existing tax laws, statutes, rules, regulations or ordinances could be interpreted, changed, modified or applied adversely to us. For example, legislation enacted in 2017 informally titled the Tax Cuts and Jobs Act, the Coronavirus Aid, Relief, and Economic Security Act and the Inflation Reduction Act enacted many significant changes to the U.S. tax laws. Effective January 1, 2022, the Tax Cuts and Jobs Act eliminated the option to deduct research and development expenses for tax purposes in the year incurred and requires taxpayers to capitalize and subsequently amortize such expenses over five years for research activities conducted in the United States and over 15 years for research activities conducted outside the United States. Although there have been legislative proposals to repeal or defer the capitalization requirement to later years, the provision may not actually be repealed or otherwise modified. Future guidance from the Internal Revenue Service and other tax authorities with respect to such legislation may affect us, and certain aspects of such legislation could be repealed or modified in future legislation. In addition, it is uncertain if and to what extent various states will conform to federal tax laws. Future tax reform legislation could have a material impact on the value of our deferred tax assets, could result in significant one-time charges, and could increase our future U.S. tax expense.

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

Portions of our net operating loss carryforwards could expire unused and be unavailable to offset future income tax liabilities. Under current law, federal net operating losses incurred in tax years beginning after December 31, 2017, may be carried forward indefinitely, but the deductibility of such federal net operating losses is limited to 80% of taxable income. It is uncertain if and to what extent various states will conform to federal tax laws. In addition, under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended (the Code), and corresponding provisions of state law, if a corporation undergoes an “ownership change,” which is generally defined as a greater than 50 percent change, by value, in its equity ownership over a three-year period, the corporation’s ability to use its pre-change net operating loss carryforwards and other pre-change tax attributes to offset its post-change income or taxes may be limited. We have experienced ownership changes in the past and we may experience additional ownership changes in the future as a result of subsequent shifts in our stock ownership, some of which may be outside of our control. If an ownership change occurs and our ability to use our net operating loss carryforwards is materially limited, it would harm our future operating results by effectively increasing our future tax obligations. In addition, at the state level, there may be periods during which the use of net operating loss carryforwards is suspended or otherwise limited, which could accelerate or permanently increase state taxes owed. As a result, if we earn net taxable income, we may be unable to use all or a material portion of our net operating loss carryforwards and other tax attributes, which could potentially result in increased future tax liability to us and adversely affect our future cash flows.

Tax authorities could reallocate our taxable income among our subsidiaries, which could increase our overall tax liability.*

The amount of taxes we pay in different jurisdictions depends on the application of the tax laws of various jurisdictions, including the United States, to our international business activities, tax rates, new or revised tax laws, or interpretations of tax laws and policies, and our ability to operate our business in a manner consistent with our corporate structure and intercompany arrangements. In 2015, we licensed worldwide intellectual property rights related to pimavanserin in certain indications to Acadia Pharmaceuticals GmbH, our wholly owned Swiss subsidiary (Acadia GmbH), and in July 2020 we licensed additional related rights to Acadia GmbH. Our goals for the establishment of Acadia GmbH, and the licensing of worldwide intellectual property rights for pimavanserin, include building a platform for long-term operational and financial efficiencies, including tax-related efficiencies. The taxing authorities of the jurisdictions in which we operate may challenge our methodologies for pricing intercompany transactions pursuant to our intercompany arrangements or disagree with our determinations as to the income and expenses attributable to specific jurisdictions. In addition, future changes in U.S. and non-U.S. tax laws, including implementation of international tax reform relating to the tax treatment of multinational corporations, if enacted, may reduce or eliminate any potential financial efficiencies that we hoped to achieve by establishing this operational structure. Additionally, taxing authorities, such as the U.S. Internal Revenue Service, may audit and otherwise challenge these types of arrangements, and have done so with other companies in the pharmaceutical industry. If any such challenge or disagreement were to occur or change in tax law were enacted, we could be required to pay additional taxes, interest and penalties, which could result in one-time tax charges, higher effective tax rates, reduced cash flows and lower overall profitability of our operations. Our financial statements could fail to reflect adequate reserves to cover such a contingency. Similarly, a taxing authority could assert that we are subject to tax in a jurisdiction where we believe we have not established a taxable connection, often referred to as a “permanent establishment” under international tax treaties, and such an assertion, if successful, could increase our expected tax liability in one or more jurisdictions.

Unfavorable global economic conditions could adversely affect our business, financial condition or results of operations.*

Our results of operations could be adversely affected by general conditions in the U.S. and global economies, the U.S. and global financial markets and adverse macroeconomic developments. U.S. and global market and economic conditions have been, and continue to be, disrupted and volatile due to many factors, including recent and potential future bank failures, material shortages and related supply chain challenges, geopolitical developments such as the conflict between Ukraine and Russia and related sanctions, and increasing inflation rates and the responses by central banking authorities to control such inflation, among others. General business and economic conditions that could affect our business, financial condition or results of operations include fluctuations in economic growth, debt and equity capital markets, liquidity of the global financial markets, the availability and cost of credit, investor and consumer confidence, and the strength of the economies in which we, our collaborators, our manufacturers and our suppliers operate.

A severe or prolonged global economic downturn could result in a variety of risks to our business. For example, inflation rates, particularly in the United States, have increased recently to levels not seen in years, and increased inflation may result in increases in our operating costs (including our labor costs), reduced liquidity and limits on our ability to access credit or otherwise raise capital on acceptable terms, if at all. In addition, the U.S. Federal Reserve has raised, and may again raise, interest rates in response to concerns about inflation, which coupled with reduced government spending and volatility in financial markets may have the effect of further increasing economic uncertainty and heightening these risks. Risks of a prolonged global economic downturn are particularly true in Europe, which is undergoing a continued severe economic crisis. A weak or declining economy could also strain our suppliers and manufacturers, possibly resulting in supply and clinical trial disruption. Any of the foregoing could harm our business and we cannot anticipate all of the ways in which the current economic climate and financial market conditions could adversely impact our business.

Public health threats have impacted our clinical trials and could have an adverse effect on our operations and financial results, or may cause us to modify or suspend our financial guidance.*

The COVID-19 pandemic had a major impact on the financial markets, the global economy and the economies of particular countries or regions, and led to, among other things, travel restrictions, quarantines, “work-at-home” and “shelter-in-place” orders imposed by authorities and the extended shutdown of certain non-essential businesses in the U.S. throughout the world, including in countries where we have planned or active clinical trials. In an effort to protect the health and safety of our employees, our community, and our stakeholders, we have developed dynamic pandemic and workplace health policies applicable to all of our employees. These policies are localized based on current COVID-19 conditions, regulatory guidance, public health and scientific recommendations, and federal, state, and local laws. We have reopened our offices to allow employees to return, but will continue to closely monitor the COVID-19 situation. We may face several challenges or disruptions upon a return back to the workplace, including re-integration challenges by our employees and distractions to management related to such transition. The effects and duration of such measures could have a material adverse impact on our business, results of operations, financial condition and prospects.

Our sales force had physical access to hospitals, clinics, long-term care and skilled nursing facilities, healthcare providers and pharmacies curtailed, and we are still assessing the effects such curtailment had on our sales or may have on our future sales. Currently, healthcare providers are conducting patient visits in-person and through telemedicine and our sales force has been able to call upon medical clinics, hospitals, long-term care facilities and skilled nursing facilities either in person in accordance with applicable regulatory guidance and local policies or virtually. While digital tools are available to our field employees to facilitate remote meetings with healthcare providers that are unable to meet in-person, we cannot ensure that these methods will be effective. Additionally, patients who are currently using NUPLAZID or DAYBUE, or who are eligible to use NUPLAZID or DAYBUE, may be unable to meet with their healthcare providers in person, which may reduce the number of prescription refills or new patient starts, affecting our revenues both in our currently approved indication and potentially impacting our anticipated launches in other indications, if approved.

Our clinical trials were impacted by the COVID-19 pandemic as we temporarily paused enrollment in our ongoing clinical trials as well as commencement of new trials, and experienced delays in our data collection and site monitoring activities While we have re-initiated enrollment in clinical trials and related activities on a study-by-study and site-by-site basis, it is possible that our studies could be impacted due to COVID-19 in the future.

During the pandemic, the growth of sales of NUPLAZID was negatively impacted by a reduction in patient office visits, reduced occupancy rates at long-term care facilities, and reduced access to healthcare professionals. While we have observed incremental improvements in some of these factors since 2021, their levels are still below where they were pre-pandemic. No assurances can be given that the changes in medical care resulting from the pandemic will not continue to have additional negative impacts on our business, results of operations, financial condition and prospects.

The geo-political turmoil resulting from Russia's invasion of Ukraine, including the widespread and significant economic sanctions imposed on Russia, has caused significant disruptions of our clinical trial activities in Russia and Ukraine.*

We have engaged CROs to conduct clinical trials worldwide. Certain of our trials have a limited number of clinical sites in Russia and Ukraine where patient recruiting and screening were not complete at the time of Russia's military aggression in Ukraine. The resulting geo-political turmoil has caused significant disruptions, including the suspension of further new enrollment of patients at our clinical trial sites in Ukraine and Russia. Existing patients may have been evacuated or relocated far from clinical sites, making it difficult for participation in our clinical trials. Site personnel and/or CRO personnel may be unavailable or otherwise unable to conduct clinical trial activities. Furthermore, the widespread sanctions imposed on Russia have affected clinical sites in Russia managed by our CROs. In addition, clinical sites, their personnel and patients may not be able to continue in the trials and therefore we have terminated the trials in Russia. While we have a limited number of clinical sites in Ukraine and Russia, these significant disruptions and the suspension/termination of clinical trial activities could potentially delay the completion of enrollment in our clinical trials and complicate the analysis of data, as affected clinical sites might not be able to have their data be validated or protocol assessments may be missed. Even if data collection can be completed, the FDA may be unable to audit clinical trial sites in Ukraine or Russia. Interruptions of clinical trials may further delay our clinical development and the potential authorization or approval of our product candidates, which could materially increase our costs and adversely affect our ability to commence product sales and generate revenues.

Earthquake or fire damage to our facilities could delay our research and development efforts and adversely affect our business.

Our headquarters and research and development facilities in San Diego are located in a seismic zone, and we face the possibility of one or more earthquakes, which could be disruptive to our operations and result in delays in our research and development efforts. In addition, while our facilities have not been adversely impacted by local wildfires, there is the possibility of future fires in the area. In the event of an earthquake or fire, if our facilities or the equipment in our facilities is significantly damaged or destroyed for any reason, we may not be able to rebuild or relocate our facilities or replace any damaged equipment in a timely manner and our business, financial condition, and results of operations could be materially and adversely affected. We do not have insurance for damages resulting from earthquakes. While we do have fire insurance for our property and equipment located in San Diego, any damage sustained in a fire could cause a delay in our research and development efforts and our results of operations could be materially and adversely affected.

Our business involves the use of hazardous materials, and we and our third-party manufacturers and suppliers must comply with environmental, health and safety laws and regulations, which can be expensive and restrict how we do, or interrupt our, business.

Our research and development activities and our third-party manufacturers' and suppliers' activities involve the generation, storage, use and disposal of hazardous materials, including the components of our products and product candidates and other hazardous compounds and wastes. We and our manufacturers and suppliers are subject to environmental, health and safety laws and regulations governing, among other matters, the use, manufacture, generation, storage, handling, transportation, discharge and disposal

of these hazardous materials and wastes and worker health and safety. In some cases, these hazardous materials and various wastes resulting from their use are stored at our and our manufacturers' facilities pending their use and disposal. We cannot eliminate the risk of contamination or injury, which could result in an interruption of our commercialization efforts, research and development efforts and business operations, damages and significant cleanup costs and liabilities under applicable environmental, health and safety laws and regulations. We also cannot guarantee that the safety procedures utilized by our third-party manufacturers for handling and disposing of these materials and wastes generally comply with the standards prescribed by these laws and regulations. We may be held liable for any resulting damages costs or liabilities, which could exceed our resources, and state or federal or other applicable authorities may curtail our use of certain materials and/or interrupt our business operations. Furthermore, environmental, health and safety laws and regulations are complex, change frequently and have tended to become more stringent. We cannot predict the impact of such changes and cannot be certain of our future compliance. Failure to comply with these environmental, health and safety laws and regulations may result in substantial fines, penalties or other sanctions. We do not currently carry hazardous waste insurance coverage.

Risks Related to Our Relationships with Third Parties

We previously have depended, and in the future may depend, on collaborations with third parties to develop and commercialize selected product candidates other than pimavanserin, and we have limited control over how those third parties conduct development and commercialization activities for such product candidates.

In the past, we have selectively entered into collaboration agreements with third parties. We relied on our collaborators for financial resources and for development, regulatory, and commercialization expertise for selected product candidates and we had limited control over the amount and timing of resources that our collaborators devoted to our product candidates. We may choose to rely on collaborations in the future for certain portions of our pimavanserin program or other product candidates, or for the commercialization of NUPLAZID in certain territories outside of the U.S.

Our collaborators may fail to develop or effectively commercialize products using our product candidates or technologies because they:

- do not have sufficient resources or decide not to devote the necessary resources due to internal constraints such as limited cash or human resources or a change in strategic focus;
- may not properly maintain, enforce or defend our intellectual property rights or may use our proprietary information in a manner that could jeopardize or invalidate our proprietary information or expose us to potential litigation;
- terminate the arrangement or allow it to expire, which would delay the development and commercialization and may increase the cost of developing and commercializing our products or product candidates;
- may sell, transfer or divest assets or programs related to our partnered product or product candidates;
- may not pursue further development and commercialization of products resulting from the strategic collaboration arrangement;
- decide to pursue a competitive product developed outside of the collaboration; or
- cannot obtain the necessary regulatory approvals.

Collaborations are complex and time-consuming to negotiate and document. We also will face competition in our search for new collaborators, if we seek a new partner for our pimavanserin program or other programs. Given the current economic and industry environment, it is possible that competition for new collaborators may increase. 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. If we are unable to find new collaborations, we may not be able to continue advancing our programs alone.

If conflicts arise with our collaborators, they may act in their self-interests, which may be adverse to our interests.

Conflicts may arise in our collaborations due to one or more of the following:

- disputes or breaches with respect to payments that we believe are due under the applicable agreements, particularly in the current environment when companies, including large established ones, may be seeking to reduce external payments;
- disputes on strategy as to what development or commercialization activities should be pursued under the applicable agreements;

- disputes as to the responsibility for conducting development and commercialization activities pursuant to the applicable collaboration, including the payment of costs related thereto;
- disagreements with respect to ownership of intellectual property rights;
- unwillingness on the part of a collaborator to keep us informed regarding the progress of its development and commercialization activities, or to permit public disclosure of these activities;
- delay or reduction of a collaborator's development or commercialization efforts with respect to our product candidates; or
- termination or non-renewal of the collaboration.

Conflicts arising with our collaborators could impair the progress of our product candidates, harm our reputation, result in a loss of revenues, reduce our cash position, and cause a decline in our stock price.

In addition, in our past collaborations, we generally have agreed not to conduct independently, or with any third party, any research that is directly competitive with the research conducted under the applicable program. Any collaborations we establish in the future may have the effect of limiting the areas of research that we may pursue, either alone or with others. Conversely, the terms of any collaboration we may establish in the future might not restrict our collaborators from developing, either alone or with others, products in related fields that are competitive with the products or potential products that are the subject of these collaborations. Competing products, either developed by our collaborators or to which our collaborators have rights, may result in the allocation of resources by our collaborators to competing products and their withdrawal of support for our product candidates or may otherwise result in lower demand for our potential products.

We rely on third parties to conduct our clinical trials and perform data collection and analysis, which may result in costs and delays that prevent us from successfully commercializing product candidates.

Although we design and manage our current preclinical studies and clinical trials, we currently do not have the ability to conduct clinical trials for our product candidates on our own. We rely on CROs, medical institutions, clinical investigators, and contract laboratories to perform data collection and analysis and other aspects of our clinical trials. In addition, we also rely on third parties to assist with our preclinical studies, including studies regarding biological activity, safety, absorption, metabolism, and excretion of product candidates. Some of these third parties may experience shutdowns or other disruptions as a result of COVID-19 and therefore may be unable to provide the level of service that we have received in the past.

Our preclinical activities or clinical trials may be delayed, suspended, or terminated if:

- these third parties do not successfully carry out their contractual duties or fail to meet regulatory obligations or expected deadlines;
- these third parties need to be replaced; or
- the quality or accuracy of the data obtained by these third parties is compromised due to their failure to adhere to our clinical protocols or regulatory requirements or for other reasons.

Failure to perform by these third parties may increase our development costs, delay our ability to obtain regulatory approval, and delay or prevent the commercialization of our product candidates. We currently use several CROs to perform services for our preclinical studies and clinical trials. While we believe that there are numerous alternative sources to provide these services, in the event that we seek such alternative sources, we may not be able to enter into replacement arrangements without delays or additional expenditures, any of which could affect our business, results of operations, financial condition and prospects.

Even if we or our collaborators successfully complete the clinical trials of product candidates, the product candidates may fail for other reasons.

Of the large number of product candidates in development, only a small percentage result in the submission of an NDA to the FDA or comparable regulatory filing to regulatory authorities in other jurisdictions, and even fewer are approved for marketing. We cannot assure you that, even if clinical trials are completed, either we or our collaborators will submit applications for required authorizations to manufacture and/or market potential products or that any such application will be reviewed and approved by the appropriate regulatory authorities in a timely manner, if at all. Even if we or our collaborators successfully complete the clinical trials of product candidates and apply for such required authorizations, the product candidates, such as pimavanserin, may fail for other reasons, including the possibility that the product candidates will:

- fail to receive the regulatory clearances required to market them as drugs;
- be subject to proprietary rights held by others requiring the negotiation of a license agreement prior to marketing;
- be difficult or expensive to manufacture on a commercial scale;
- have adverse side effects that make their use less desirable; or
- fail to compete with product candidates or other treatments commercialized by competitors.

We currently depend, and in the future will continue to depend, on third parties to manufacture NUPLAZID, DAYBUE and any other product candidates. If these manufacturers fail to provide us or our collaborators with adequate supplies of clinical trial materials and commercial product or fail to comply with the requirements of regulatory authorities, we may be unable to develop or commercialize NUPLAZID, DAYBUE or any other product candidates.*

We have no manufacturing facilities and only limited experience as an organization in the manufacturing of drugs or in designing drug-manufacturing processes. We have contracted with third-party manufacturers to produce, in collaboration with us, NUPLAZID, DAYBUE and our other product candidates.

We have contracted with Patheon Pharmaceuticals Inc. to manufacture NUPLAZID 10 mg tablet and 34 mg capsule drug product for commercial use in the U.S. We have also contracted with a second contract manufacturing organization to manufacture NUPLAZID 34 mg drug product for commercial use in the U.S. Additionally, we have contracted with Siegfried AG to manufacture active pharmaceutical ingredient (API), to be used in the manufacture of NUPLAZID drug product for commercial use. However, we have not entered into any agreements with any alternate suppliers for 10 mg NUPLAZID drug product or NUPLAZID API, and we may face delays or increased costs in our supply chain that could jeopardize the commercialization of NUPLAZID. While we currently have sufficient API for both NUPLAZID and DAYBUE and NUPLAZID and DAYBUE finished products on hand to continue our commercial and clinical operations as planned, depending on the effects of geopolitical and macroeconomic developments and whether such developments cause disruptions, we may face such delays or costs in future years. If any third party in our supply or distribution chain for materials or finished product is adversely impacted by geopolitical and macroeconomic developments, such as recent and potential future bank failures, the ongoing conflict between Ukraine and Russia, our supply chain may be disrupted, limiting our ability to manufacture and distribute NUPLAZID or DAYBUE for commercial sales and our product candidates for our clinical trials and research and development operations. Additionally, if NUPLAZID is approved for commercial sale in jurisdictions outside the U.S., we will need to contract with a third party to manufacture such products for commercial sale in the U.S. and/or in such other jurisdictions. We may not be able to enter into such contracts in a timely manner or on acceptable terms, if at all.

Even though we have agreements with third parties for the manufacture of NUPLAZID and DAYBUE, the FDA may not approve the facilities of such manufacturers, the manufacturers may not perform as agreed, or the manufacturers may terminate their agreements with us. Presently, we have agreements with Patheon for the manufacture of NUPLAZID 10 mg table, with Patheon and another manufacturer for the manufacture of 34 mg capsule drug product and with Siegfried for the manufacture of NUPLAZID API for commercial use. If any of the foregoing circumstances occur, we may need to find alternative manufacturing facilities, which would significantly impact our ability to develop, maintain or obtain, as applicable, regulatory approval for or market NUPLAZID, DAYBUE or any other product candidates. While we believe that there will be alternative sources available to manufacture NUPLAZID, DAYBUE and any other product candidates, in the event that we seek such alternative sources, we may not be able to enter into replacement arrangements without delays or additional expenditures. We cannot estimate these delays or costs with certainty but, if they were to occur, they could cause a delay in our development and commercialization efforts.

The manufacturers of NUPLAZID, DAYBUE and any other product candidates, including Patheon and Siegfried, are obliged to operate in accordance with FDA-mandated cGMPs, and we have limited control over the ability of third-party manufacturers to maintain adequate quality control, quality assurance and qualified personnel to ensure compliance with cGMPs. In addition, the

facilities used by our third-party manufacturers to manufacture NUPLAZID and DAYBUE and any other product candidates must be approved by the FDA pursuant to inspections that will be conducted prior to any grant of regulatory approval by the FDA. If any of our third-party manufacturers are unable to successfully manufacture material that conforms to our specifications and the FDA's strict regulatory requirements, or pass regulatory inspection, they will not be able to secure or maintain approval for the manufacturing facilities. Additionally, a failure by any of our third-party manufacturers to establish and follow cGMPs or to document their adherence to such practices may lead to significant delays in clinical trials or in obtaining regulatory approval of product candidates, or result in issues maintaining regulatory approval of NUPLAZID, DAYBUE and any other product candidate that receives regulatory approval, negatively impact our commercialization of NUPLAZID or DAYBUE, or lead to significant delays in the launch and commercialization of any other products we may have in the future. Failure by our third-party manufacturers or us to comply with applicable regulations could result in sanctions being imposed on us, including fines, injunctions, civil penalties, failure of the government to grant pre-market approval of drugs, delays, suspension or withdrawal of approvals, seizures or recalls of products, operating restrictions, and criminal prosecutions.

The manufacture of pharmaceutical products requires significant capital investment, including the development of advanced manufacturing techniques and process controls. Manufacturers of pharmaceutical products often encounter difficulties in production. These problems include difficulties with production costs and yields, quality control, including stability of the product, quality assurance testing, shortages of qualified personnel, as well as compliance with strictly enforced federal, state and foreign regulations. We cannot assure you that any issues relating to the manufacture of NUPLAZID, DAYBUE or any other product candidates will not occur in the future. Additionally, our manufacturers may experience manufacturing difficulties due to resource constraints or as a result of labor disputes or unstable political environments. If our manufacturers were to encounter any of these difficulties, or otherwise fail to comply with their contractual obligations, our ability to commercialize NUPLAZID or DAYBUE in the U.S., or provide pimavanserin, trofinetide or any other product candidates to patients in clinical trials, would be jeopardized. Any delay or interruption in our ability to meet commercial demand for NUPLAZID, DAYBUE and any other approved products will result in the loss of potential revenues and could adversely affect our ability to gain market acceptance for these products. In addition, any delay or interruption in the supply of clinical trial supplies could delay the completion of clinical trials, increase the costs associated with maintaining clinical trial programs and, depending upon the period of delay, require us to commence new clinical trials at additional expense or terminate clinical trials completely.

Failures or difficulties faced at any level of our supply chain could materially adversely affect our business and delay or impede the development and commercialization of NUPLAZID, DAYBUE or any other product candidates and could have a material adverse effect on our business, results of operations, financial condition and prospects.

If we fail to comply with the obligations in agreements under which we license intellectual property rights from third parties, we could lose license rights to certain of our product candidates.*

In July 2023, we entered into an expanded license agreement with Neuren under which we have the exclusive worldwide rights to develop and commercialize trofinetide for Rett syndrome and other indications and NNZ-2591 for Rett syndrome and Fragile X syndrome. In January 2022, we entered into a license and collaboration agreement with Stoke to discover, develop and commercialize novel RNA-based medicines for the potential treatment of severe and rare genetic neurodevelopmental diseases of the CNS.

Our agreements with Neuren and Stoke impose, and we expect that future agreements where we in-license intellectual property will impose, 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 bankruptcy-related proceedings, 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.

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 patents and other rights to third parties;
- 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;
- our right to transfer or assign the license; 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 not be able to successfully develop and commercialize the related product candidates, which would have a material adverse effect on our business.

We may not be able to continue or fully exploit our collaborations with outside scientific and clinical advisors, which could impair the progress of our clinical trials and our research and development efforts.

We work with scientific and clinical advisors at academic and other institutions who are experts in the field of CNS disorders. They assist us in our research and development efforts and advise us with respect to our clinical trials. These advisors are not our employees and may have other commitments that would limit their future availability to us. Although our scientific and clinical advisors generally agree not to engage in competing work, if a conflict of interest arises between their work for us and their work for another entity, we may lose their services, which may impair our reputation in the industry and delay the development or commercialization of our product candidates.

Risks Related to Our Intellectual Property

Our ability to compete may decline if we do not adequately protect our proprietary rights.*

Our commercial success depends on obtaining and maintaining intellectual property rights to our products and product candidates, including NUPLAZID and DAYBUE, and technologies, as well as successfully defending these rights against third-party challenges. Successful challenges to, or misappropriation of, our intellectual property could enable competitors to quickly duplicate or surpass our technological achievements, thus eroding our competitive position in our market. To protect our intellectual property, we rely on a combination of patents, trade secret protection and contracts requiring confidentiality and nondisclosure. If our patents are successfully challenged, we may face generic competition prior to the expiration dates of our U.S. Orange Book listed patents. In addition, potential competitors have in the past and may in the future file an Abbreviated New Drug Application (ANDA) with the FDA for generic versions of NUPLAZID, seeking approval prior to the expiration of our patents. In response, we have filed complaints against these companies alleging infringement of certain of our Orange Book-listed patents covering NUPLAZID. For a more detailed description of these matters, see section captioned “Legal Proceedings” elsewhere in this report. While we intend to defend the validity of such patents vigorously, and will seek to use all appropriate methods to prevent their infringement, such efforts are expensive and time consuming. Any substantial decrease in the revenue and income derived from NUPLAZID or DAYBUE would have an adverse effect on our results of operations.

With regard to patents, although we have filed numerous patent applications worldwide with respect to pimavanserin, not all of our patent applications resulted in an issued patent, or they resulted in an issued patent that is susceptible to challenge by a third party. Our ability to obtain, maintain, and/or defend our patents covering our product candidates and technologies is uncertain due to a number of factors, including:

- we may not have been the first to make the inventions covered by our pending patent applications or issued patents;
- we may not have been the first to file patent applications for our product candidates or the technologies we rely upon;
- others may develop similar or alternative technologies or design around our patent claims to produce competitive products that fall outside of the scope of our patents;
- our disclosures in patent applications may not be sufficient to meet the statutory requirements for patentability;
- we may not seek or obtain patent protection in all countries that will eventually provide a significant business opportunity;
- any patents issued to us or our collaborators may not provide a basis for commercially viable products, may not provide us with any competitive advantages, or are easily susceptible to challenges by third parties;
- our proprietary technologies may not be patentable;
- changes to patent laws that limit the exclusivity rights of patent holders or make it easier to render a patent invalid;
- recent decisions by the U.S. Supreme Court limiting patent-eligible subject matter;
- litigation regarding our patents may include challenges to the validity, enforceability, scope and term of one or more patents;

- the passage of The Leahy-Smith America Invents Act (the America Invents Act), introduced new procedures for challenging pending patent applications and issued patents; and
- technology that we may in-license may become important to some aspects of our business; however, we generally would not control the patent prosecution, maintenance or enforcement of any such in-licensed technology.

Even if we have or obtain patents covering our product candidates or technologies, we may still be barred from making, using and selling our product candidates or technologies because of the patent rights of others. Others have or may have filed, and in the future are likely to file, patent applications covering compounds, assays, genes, gene products or therapeutic products that are similar or identical to ours. There are many issued U.S. and foreign patents relating to genes, nucleic acids, polypeptides, chemical compounds or therapeutic products, and some of these may encompass reagents utilized in the identification of candidate drug compounds or compounds that we desire to commercialize. Numerous U.S. and foreign issued patents and pending patent applications owned by others exist in the area of CNS disorders and the other fields in which we are developing products. These could materially affect our freedom to operate. Moreover, because patent applications can take many years to issue, there may be currently pending applications, unknown to us, that may later result in issued patents that our product candidates or technologies may infringe. These patent applications may have priority over patent applications filed by us.

We regularly conduct searches to identify patents or patent applications that may prevent us from obtaining patent protection for our proprietary compounds or that could limit the rights we have claimed in our patents and patent applications. Disputes may arise regarding the ownership or inventorship of our inventions. For applications in which all claims are entitled to a priority date before March 16, 2013, an interference proceeding can be provoked by a third-party or instituted by the U.S. Patent and Trademark Office (U.S. PTO), to determine who was the first to invent the invention at issue. It is difficult to determine how such disputes would be resolved. Applications containing a claim not entitled to priority before March 16, 2013, are not subject to interference proceedings due the change brought by the America Invents Act to a “first-to-file” system. However, a derivation proceeding can be brought by a third-party alleging that the inventor derived the invention from another.

Periodic maintenance fees on any issued patent are due to be paid to the U.S. PTO and foreign patent agencies in several stages over the lifetime of the patent. The U.S. PTO and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other similar provisions during the patent application process. While an inadvertent lapse can in many cases be cured by payment of a late fee or by other means in accordance with the applicable rules, there are situations in which noncompliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. Non-compliance events that could result in abandonment or lapse of a patent or patent application include, but are not limited to, failure to respond to official actions within prescribed time limits, non-payment of fees and failure to properly legalize and submit formal documents. In such an event, our competitors might be able to enter the market, which would have a material adverse effect on our business.

Some of our academic institutional licensors, research collaborators and scientific advisors have rights to publish data and information to which we have rights. We generally seek to prevent our collaborators from disclosing scientific discoveries until we have the opportunity to file patent applications on such discoveries, but in some cases, we are limited to relatively short periods to review a proposed publication and file a patent application. If we cannot maintain the confidentiality of our technology and other confidential information in connection with our collaborations, then our ability to receive patent protection or protect our proprietary information may be impaired.

Confidentiality agreements with employees and others may not adequately prevent disclosure of our trade secrets and other proprietary information and may not adequately protect our intellectual property, which could limit our ability to compete.

Because we operate in the highly technical field of drug discovery and development of small molecule drugs, we rely in part on trade secret protection in order to protect our proprietary technology and processes. However, trade secrets are difficult to protect. We enter into confidentiality, nondisclosure, and intellectual property assignment agreements with our corporate partners, employees, consultants, outside scientific collaborators, sponsored researchers, and other advisors. These agreements generally require that the other party keep confidential and not disclose to third parties all confidential information developed by the party or made known to the party by us during the course of the party’s relationship with us. These agreements also 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. Enforcing a claim that a party illegally obtained and is using our trade secrets is difficult, expensive and time consuming and the outcome is unpredictable. In addition, courts outside the U.S. may be less willing to protect trade secrets. We also have not entered into any noncompete agreements with any of our employees. Although each of our employees is required to sign a confidentiality agreement with us at the time of hire, we cannot guarantee that the confidential nature of our proprietary information will be maintained in the course of future employment with any of our competitors. If we are unable to prevent unauthorized material disclosure of our intellectual property to third parties, we will not be able to establish or

maintain a competitive advantage in our market, which could materially adversely affect our business, operating results and financial condition.

A dispute concerning the infringement or misappropriation of our proprietary rights or the proprietary rights of others could be time-consuming and costly, and an unfavorable outcome could harm our business.

There is a substantial amount of litigation involving patents and other intellectual property rights in the biotechnology and pharmaceutical industries, as well as administrative proceedings for challenging patents, including post-issuance review proceedings before the U.S. PTO or oppositions and other comparable proceedings in foreign jurisdictions.

Central provisions of the America Invents Act went into effect on September 16, 2012 and on March 16, 2013. The America Invents Act includes a number of significant changes to U.S. patent law. These changes include provisions that affect the way patent applications are being filed, prosecuted and litigated. For example, the America Invents Act enacted proceedings involving post-issuance patent review procedures, such as inter partes review (IPR), and post-grant review, that allow third parties to challenge the validity of an issued patent in front of the U.S. PTO Patent Trial and Appeal Board. Each proceeding has different eligibility criteria and different patentability challenges that can be raised. IPRs permit any person (except a party who has been litigating the patent for more than a year) to challenge the validity of the patent on the grounds that it was anticipated or made obvious by prior art. Patents covering pharmaceutical products have been subject to attack in IPRs from generic drug companies and from hedge funds. If it is within nine months of the issuance of the challenged patent, a third party can petition the U.S. PTO for post-grant review, which can be based on any invalidity grounds and is not limited to prior art patents or printed publications.

In post-issuance proceedings, U.S. PTO rules and regulations generally tend to favor patent challengers over patent owners. For example, unlike in district court litigation, claims challenged in post-issuance proceedings are given their broadest reasonable meaning, which increases the chance a claim might be invalidated by prior art or lack support in the patent specification. As another example, unlike in district court litigation, there is no presumption of validity for an issued patent, and thus, a challenger's burden to prove invalidity is by a preponderance of the evidence, as opposed to the heightened clear and convincing evidence standard. As a result of these rules and others, statistics released by the U.S. PTO show a high percentage of claims being invalidated in post-issuance proceedings. Moreover, with few exceptions, there is no standing requirement to petition the U.S. PTO for inter partes review or post-grant review. In other words, companies that have not been charged with infringement or that lack commercial interest in the patented subject matter can still petition the U.S. PTO for review of an issued patent. Thus, even where we have issued patents, our rights under those patents may be challenged and ultimately not provide us with sufficient protection against competitive products or processes.

We may be exposed to future litigation by third parties based on claims that our product candidates, technologies or activities infringe the intellectual property rights of others. In particular, there are many patents relating to specific genes, nucleic acids, polypeptides or the uses thereof to identify product candidates. Some of these may encompass genes or polypeptides that we utilize in our drug development activities. If our drug development activities are found to infringe any such patents, and such patents are held to be valid and enforceable, we may have to pay significant damages or seek licenses to such patents. A patentee could prevent us from using the patented genes or polypeptides for the identification or development of drug compounds. There are also many patents relating to chemical compounds and the uses thereof. If our compounds are found to infringe any such patents, and such patents are held to be valid and enforceable, we may have to pay significant damages or seek licenses to such patents. A patentee could prevent us from making, using or selling the patented compounds.

In addition to the patent infringement lawsuits that we have recently initiated against the filers of ANDAs pertaining to NUPLAZID, we may need to resort to litigation to enforce other patents issued to us, protect our trade secrets or determine the scope and validity of third-party proprietary rights. From time to time, we may hire scientific personnel formerly employed by other companies involved in one or more areas similar to the activities conducted by us. Either we or these individuals may be subject to allegations of trade secret misappropriation or other similar claims as a result of their prior affiliations. If we become involved in litigation, it could consume a substantial portion of our managerial and financial resources, regardless of whether we win or lose. We may not be able to afford the costs of litigation. Any legal action against us or our collaborators could lead to:

- payment of damages, which could potentially be trebled if we are found to have willfully infringed a party's patent rights;
- injunctive or other equitable relief that may effectively block our ability to further develop, commercialize, and sell products; or
- we or our collaborators having to enter into license arrangements that may not be available on commercially acceptable terms, or at all.

As a result, we could be prevented from commercializing current or future products.

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

The patent applications of pharmaceutical and biotechnology companies involve highly complex legal and factual questions, which, if determined adversely to us, could negatively impact our patent position.

The strength of patents in the pharmaceutical and biotechnology field can be highly uncertain and involve complex legal and factual questions. For example, some of our patent applications may cover the uses of gene sequences. The patentability of gene sequences and the use of gene sequences has been seriously undermined by recent decisions of the U.S. Supreme Court. The U.S. PTO's interpretation of the Supreme Court's decisions and the standards for patentability it sets forth are uncertain and could change in the future. Consequently, the issuance and scope of patents cannot be predicted with certainty. Patents, if issued, may be challenged, invalidated or circumvented. U.S. patents and patent applications may also be subject to interference proceedings as mentioned above, and U.S. patents may be subject to reexamination and post-issuance proceedings in the U.S. PTO (and foreign patents may be subject to opposition or comparable proceedings in the corresponding foreign patent office), which 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. Similarly, opposition or invalidity proceedings could result in loss of rights or reduction in the scope of one or more claims of a patent in foreign jurisdictions. In addition, such interference, reexamination, post-issuance and opposition proceedings may be costly. Accordingly, rights under any issued patents may not provide us with sufficient protection against competitive products or processes.

In addition, changes in or different interpretations of patent laws in the U.S. and foreign countries may permit others to use our discoveries or to develop and commercialize our technology and products without providing any compensation to us or may limit the number of patents or claims we can obtain. In particular, there have been proposals to shorten the exclusivity periods available under U.S. patent law that, if adopted, could substantially harm our business. The product candidates that we are developing are protected by intellectual property rights, including patents and patent applications. If any of our product candidates becomes a marketable product, we will rely on our exclusivity under patents to sell the compound and recoup our investments in the research and development of the compound. If the exclusivity period for patents is shortened, then our ability to generate revenues without competition will be reduced and our business could be materially adversely impacted. The laws of some countries do not protect intellectual property rights to the same extent as U.S. laws and those countries may lack adequate rules and procedures for defending our intellectual property rights. For example, some countries, including many in Europe, do not grant patent claims directed to methods of treating humans and, in these countries, patent protection may not be available at all to protect our product candidates. In addition, U.S. patent laws may change which could prevent or limit us from filing patent applications or patent claims to protect our products and/or technologies or limit the exclusivity periods that are available to patent holders. For example, the America Invents Act (2012) included a number of significant changes to U.S. patent law. These included changes to transition from a "first-to-invent" system to a "first-to-file" system and to the way issued patents are challenged. These changes may favor larger and more established companies that have more resources to devote to patent application filing and prosecution. It is still not clear what, if any, impact the America Invents Act will ultimately have on the cost of prosecuting our patent applications, our ability to obtain patents based on our discoveries and our ability to enforce or defend our issued patents.

If we fail to obtain and maintain patent protection and trade secret protection of our product candidates, proprietary technologies and their uses, we could lose our competitive advantage and competition we face would increase, reducing our potential revenues and adversely affecting our ability to attain or maintain profitability.

Risks Related to Government Regulation and Our Industry

Healthcare reform measures may negatively impact our ability to sell NUPLAZID, DAYBUE or our product candidates, if approved, profitably.*

In both the U.S. and certain foreign jurisdictions, there have been a number of legislative and regulatory proposals to change the healthcare system in ways that could impact our ability to sell NUPLAZID, DAYBUE and any other potential products, as described in greater detail in the Government Regulation section of our Annual Report.

For example, the Patient Protection and Affordable Care Act of 2010, as amended by the Health Care and Education Reconciliation Act of 2010 (collectively the ACA), as well as other healthcare reform measures that may be adopted in the future, may result in more rigorous coverage criteria and in additional downward pressure on the price that we may receive for any approved product, including NUPLAZID and DAYBUE. With respect to pharmaceutical products, the ACA, among other things, expanded and

increased industry rebates for drugs covered by Medicaid and made changes to the coverage requirements under Medicare Part D, Medicare's prescription drug benefits program. There have been legal and political challenges to certain aspects of the ACA. Furthermore, on June 17, 2021, the U.S. Supreme Court dismissed a challenge on procedural grounds that argued the ACA is unconstitutional in its entirety because the "individual mandate" was repealed by Congress. Moreover, prior to the U.S. Supreme Court ruling, on January 28, 2021, President Biden issued an executive order that initiated a special enrollment period for purposes of obtaining health insurance coverage through the ACA marketplace, which began on February 15, 2021 and remained open through August 15, 2021. The executive order also instructed certain governmental agencies to review and reconsider their existing policies and rules that limit access to healthcare, including among others, reexamining Medicaid demonstration projects and waiver programs that include work requirements, and policies that create unnecessary barriers to obtaining access to health insurance coverage through Medicaid or the ACA. Further, on August 16, 2022, President Biden signed the Inflation Reduction Act of 2022 (IRA) into law, which among other things, extends enhanced subsidies for individuals purchasing health insurance coverage in ACA marketplaces through plan year 2025. The IRA also eliminates the "donut hole" under the Medicare Part D program beginning in 2025 by significantly lowering the beneficiary maximum out-of-pocket cost and through a newly established manufacturer discount program. It is possible that the ACA will be subject to judicial or Congressional challenges in the future. It is unclear how any such challenges and additional healthcare reform measures of the Biden administration will impact the ACA and our business.

Other legislative changes have been proposed and adopted in the U.S. since the ACA. Through the process created by the Budget Control Act of 2011, there are automatic reductions of Medicare payments to providers up to 2% per fiscal year, which went into effect in April 2013 and, due to subsequent legislative amendments, including the Infrastructure Investment and Jobs Act and the Consolidated Appropriations Act of 2023, will remain in effect through 2032 unless additional Congressional action is taken. Additionally, on March 11, 2021, President Biden signed the American Rescue Plan Act of 2021 into law, which eliminates the statutory Medicaid drug rebate cap, currently set at 100% of a drug's average manufacturer price, for single source and innovator multiple source drugs, beginning January 1, 2024. In January 2013, President Obama signed into law the American Taxpayer Relief Act of 2012, which, among other things, further reduced Medicare payments to certain providers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years. In addition, Congress is considering additional health reform measures as part of the budget reconciliation process.

An expansion in the government's role in the U.S. healthcare industry may increase existing congressional or governmental agency scrutiny on price increases, such as the ones we have implemented for NUPLAZID, cause general downward pressure on the prices of prescription drug products, lower reimbursements for providers using NUPLAZID, DAYBUE or any other product for which we obtain regulatory approval, reduce product utilization and adversely affect our business and results of operations. There have been several recent U.S. presidential executive orders, Congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to drug pricing, review the relationship between pricing and manufacturer patient programs, reduce the cost of drugs under Medicare, and reform government program reimbursement methodologies for drugs. For example, in July 2021, the Biden administration released an executive order that included multiple provisions aimed at prescription drugs. In response to Biden's executive order, on September 9, 2021, the Department of Health and Human Services (HHS) released a Comprehensive Plan for Addressing High Drug Prices that outlines principles for drug pricing reform. The plan sets out a variety of potential legislative policies that Congress could pursue as well as potential administrative actions HHS can take to advance these principles. In addition, the IRA, among other things, (1) directs HHS to negotiate the price of certain single-source drugs and biologics covered under Medicare and (2) imposes rebates under Medicare Part B and Medicare Part D to penalize price increases that outpace inflation. The IRA permits HHS to implement many of these provisions through guidance, as opposed to regulation, for the initial years. HHS has and will continue to issue and update guidance as these programs are implemented. These provisions will take effect progressively starting in fiscal year 2023, although the Medicare drug price negotiation program is currently subject to legal challenges. It is currently unclear how the IRA will be implemented but is likely to have a significant impact on the pharmaceutical industry. Further, in response to the Biden administration's October 2022 executive order, on February 14, 2023, HHS released a report outlining three new models for testing by the Centers for Medicare and Medicaid Services ("CMS") Innovation Center which will be evaluated on their ability to lower the cost of drugs, promote accessibility, and improve quality of care. It is unclear whether the models will be utilized in any health reform measures in the future. Individual states in the U.S. have also increasingly passed legislation and implemented regulations designed to control pharmaceutical product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing.

The implementation of cost-containment measures or other healthcare reforms may prevent us from being able to generate revenue, attain profitability, or commercialize NUPLAZID, DAYBUE or any other products for which we may receive regulatory approval.

We are subject, directly and indirectly, to federal, state and foreign healthcare laws and regulations, including healthcare fraud and abuse laws, false claims laws, physician payment transparency laws and health information privacy and security laws. If we are unable to comply, or have not fully complied, with such laws, we could face substantial penalties.*

Our operations are directly, and indirectly through our customers and third-party payors, subject to various U.S. federal and state healthcare laws and regulations, including, without limitation, the U.S. federal Anti-Kickback Statute, the U.S. federal False Claims Act, and physician payment sunshine laws and regulations. These laws may impact, among other things, our clinical research, sales, marketing, grants, charitable donations, and education programs and constrain the business or financial arrangements with healthcare providers, physicians, charitable foundations that support Parkinson's disease patients generally, and other parties that have the ability to directly or indirectly influence the prescribing, ordering, marketing, or distribution of our products for which we obtain marketing approval. In addition, we and any current or potential future collaborators, partners or service providers are or may become subject to data privacy and security regulation by both the U.S. federal government and the states in which we conduct our business, including laws and regulations that apply to our processing of personal data or the processing of personal data on our behalf. Finally, we may be subject to additional healthcare, statutory and regulatory requirements and enforcement by foreign regulatory authorities in jurisdictions in which we conduct our business. The laws that may affect our ability to operate include:

- the U.S. federal Anti-Kickback Statute, which prohibits, among other things, persons or entities from knowingly and willfully soliciting, offering, receiving or paying any remuneration (including any kickback, bribe, or certain rebates), directly or indirectly, overtly or covertly, in cash or in kind, to induce, or in return for, either the referral of an individual, or the purchase, lease, order or recommendation of any good, facility, item or service, for which payment may be made, in whole or in part, under U.S. federal and state healthcare programs such as Medicare and Medicaid. A person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;
- the U.S. federal civil and criminal false claims laws, including the civil False Claims Act, which can be enforced through civil whistleblower or *qui tam* actions, and civil monetary penalties laws, which impose criminal and civil penalties on individuals or entities for, among other things, knowingly presenting, or causing to be presented to the U.S. federal government, claims for payment or approval that are false or fraudulent or from knowingly making a false statement to avoid, decrease or conceal an obligation to pay money to the U.S. federal government. In addition, the government may assert that a claim including items and services resulting from a violation of the U.S. federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the False Claims Act;
- the U.S. federal Health Insurance Portability and Accountability Act of 1996 (HIPAA), which imposes criminal and civil liability for, among other things, knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program or obtain, by means of false or fraudulent pretenses, representations, or promises, any of the money or property owned by, or under the custody or control of, any healthcare benefit program, regardless of the payor (e.g., public or private) and knowingly and willfully falsifying, concealing or covering up by any trick or device a material fact or making any materially false statement, in connection with the delivery of, or payment for, healthcare benefits, items or services. Similar to the U.S. federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;
- HIPAA, and its implementing regulations, and as amended again by the Final HIPAA Omnibus Rule, Modifications to the HIPAA Privacy, Security, Enforcement and Breach Notification Rules Under the Health Information Technology for Economic and Clinical Health Act (HITECH) and the Genetic Information Nondiscrimination Act; Other Modifications to the HIPAA Rules, published in January 2013, which imposes certain obligations, including mandatory contractual terms, with respect to safeguarding the privacy, security and transmission of individually identifiable health information on covered entities subject to the rule, such as health plans, healthcare clearinghouses and certain healthcare providers as well as their business associates, individuals or entities that perform certain services involving the use or disclosure of individually identifiable health information on behalf of a covered entity and their subcontractors that use, disclose or otherwise process individually identifiable health information;
- the U.S. Federal Food, Drug and Cosmetic Act (FDCA), which prohibits, among other things, the adulteration or misbranding of drugs, biologics and medical devices;
- the U.S. federal physician payment transparency requirements, sometimes referred to as the "Physician Payments Sunshine Act", which was enacted as part of the ACA and its implementing regulations and requires certain manufacturers of drugs, devices, biologics and medical supplies for which payment is available under Medicare, Medicaid, or the Children's Health Insurance Program to report annually to the CMS information related to certain payments and other transfers of value made to physicians (as defined to include doctors of medicine, dentists, optometrists, podiatrists and chiropractors under such law), other healthcare professionals (such as physician assistants and nurse practitioners), and teaching hospitals, as well as information regarding ownership and investment interests held by physicians and their immediate family members; and

- analogous state and local laws and regulations, including: state anti-kickback and false claims laws, which may apply to our business practices, including but not limited to, research, distribution, sales and marketing arrangements and claims involving healthcare items or services reimbursed by any third-party payor, including private insurers; state laws that require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the U.S. federal government, or otherwise restrict payments that may be made to healthcare providers and other potential referral sources; state and local laws and regulations that require drug manufacturers to file reports relating to pricing and marketing information, which requires tracking gifts and other remuneration and items of value provided to healthcare professionals and entities and/or the registration of pharmaceutical sales representatives; and state laws governing the privacy and security of health information in certain circumstances, many of which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts.

Ensuring that our internal operations and future business arrangements with third parties comply with applicable healthcare laws and regulations could involve substantial costs. It is possible that governmental authorities will conclude that our business practices do not comply with current or future statutes, regulations or case law interpreting applicable fraud and abuse or other healthcare laws and regulations. For example, contributions to third-party charitable foundations are a current area of significant governmental and congressional scrutiny, and we could face action if a federal or state governmental authority were to conclude that our charitable contributions to foundations that support Parkinson's disease patients generally are not compliant. If our operations are found to be in violation of any of the laws described above or any other governmental laws and regulations that may apply to us, we may be subject to significant penalties, including civil, criminal and administrative penalties, damages, fines, exclusion from U.S. government-funded healthcare programs, such as Medicare and Medicaid, disgorgement, imprisonment, contractual damages, reputational harm, diminished profits, additional reporting requirements and/or oversight, and the curtailment or restructuring of our operations. Moreover, while we do not bill third-party payors directly and our customers make the ultimate decision on how to submit claims, from time-to-time, for NUPLAZID, DAYBUE and any other product candidates that may be approved, we may provide reimbursement guidance to patients and healthcare providers. If a government authority were to conclude that we provided improper advice and/or encouraged the submission of a false claim for reimbursement, we could face action against us by government authorities. If any of the physicians or other providers or entities with whom we expect to do business is found to be not in compliance with applicable laws, they may be subject to criminal, civil or administrative sanctions, including exclusions from government-funded healthcare programs and imprisonment. If any of the above occur, it could adversely affect our ability to operate our business and our results of operations. In addition, the approval and commercialization of NUPLAZID, DAYBUE or any other product candidates that may be approved, outside the U.S. will also likely subject us to foreign equivalents of the healthcare laws mentioned above, among other foreign laws.

We are subject to stringent and evolving U.S. and foreign laws, regulations, rules, contractual obligations, policies and other obligations related to data privacy and security. Our actual or perceived failure to comply with such obligations could lead to regulatory investigations or actions; litigation; fines and penalties; disruptions of our business operations; reputational harm; loss of revenue or profits; and other adverse business consequences.

In the ordinary course of business, we collect, receive, store, process, generate, use, transfer, disclose, make accessible, protect, secure, dispose of, transmit, and share (collectively, processing) personal data and other sensitive information, including proprietary and confidential business data, trade secrets, intellectual property, data we collect about trial participants in connection with clinical trials, sensitive third-party data, business plans, transactions, financial information and medical information collected by our patient access management team (collectively, sensitive data). Our data processing activities may subject us to numerous data privacy and security obligations, such as various laws, regulations, guidance, industry standards, external and internal privacy and security policies, contractual requirements, and other obligations relating to data privacy and security.

In the United States, federal, state, and local governments have enacted numerous data privacy and security laws, including data breach notification laws, personal data privacy laws, consumer protection laws (e.g., Section 5 of the Federal Trade Commission Act), and other similar laws (e.g., wiretapping laws). For example, HIPAA, as amended by HITECH, imposes specific requirements relating to the privacy, security, and transmission of individually identifiable health information. For example, the California Consumer Privacy Act of 2018 (CCPA) requires businesses to provide specific disclosures in privacy notices and honor requests of California residents to exercise certain privacy rights. The CCPA provides for civil penalties of up to $7,500 per violation and allows private litigants affected by certain data breaches to recover significant statutory damages. Although the CCPA exempts some data processed in the context of clinical trials, the CCPA may increase compliance costs and potential liability with respect to other personal data we may maintain about California residents. In addition, the California Privacy Rights Act of 2020 (CPRA), which became operative January 1, 2023, expands the CCPA's requirements, including applying to personal information of business representatives and employees and establishing a new regulatory agency to implement and enforce the law. Other states, such as Virginia and Colorado, have also passed comprehensive privacy laws, and similar laws are being considered in several other states, as well as at the federal and local levels. While these states, like the CCPA, also exempt some data processed in the context of clinical

trials, these developments further complicate compliance efforts and increase legal risk and compliance costs for us and the third parties upon whom we rely.

Outside the United States, an increasing number of laws, regulations, and industry standards may govern data privacy and security. For example, the EU GDPR, UK GDPR, Brazil's General Data Protection Law (Lei Geral de Proteção de Dados Pessoais, or LGPD) (Law No. 13,709/2018), and China's Personal Information Protection Law (PIPL) impose strict requirements for processing personal data. For example, companies may face temporary or definitive bans on data processing and other corrective actions; fines of up to 20 million Euros under the EU GDPR / 17.5 million pounds sterling under the UK GDPR or 4% of annual global revenue, whichever is greater; or private litigation related to processing of personal data brought by classes of data subjects or consumer protection organizations authorized at law to represent their interests.

In addition, we may be unable to transfer personal data from Europe and other jurisdictions to the United States or other countries due to data localization requirements or limitations on cross-border data flows. Europe and other jurisdictions have enacted laws requiring data to be localized or limiting the transfer of personal data to other countries. In particular, the European Economic Area (EEA) and the UK have significantly restricted the transfer of personal data to the United States and other countries whose privacy laws it believes are inadequate. Other jurisdictions may adopt similarly stringent interpretations of their data localization and cross-border data transfer laws. Although there are currently various mechanisms that may be used to transfer personal data from the EEA and UK to the United States in compliance with law, such as the EEA and UK's standard contractual clauses, these mechanisms are subject to legal challenges, and there is no assurance that we can satisfy or rely on these measures to lawfully transfer personal data to the United States. If there is no lawful manner for us to transfer personal data from the EEA, the UK, or other jurisdictions to the United States, or if the requirements for a legally-compliant transfer are too onerous, we could face significant adverse consequences, including by limiting our ability to conduct clinical trial activities in Europe and elsewhere, the interruption or degradation of our operations, the need to relocate part of or all of our business or data processing activities to other jurisdictions at significant expense, increased exposure to regulatory actions, substantial fines and penalties, the inability to transfer data and work with partners, vendors and other third parties, and injunctions against our processing or transferring of personal data necessary to operate our business. Some European regulators have ordered certain companies to suspend or permanently cease certain transfers of personal data to recipients outside Europe for allegedly violating the EU GDPR's cross-border data transfer limitations. Additionally, companies that transfer personal data to recipients outside of the EEA and/or UK to other jurisdictions, particularly to the United States, are subject to increased scrutiny from regulators individual litigants and activist groups.

In addition to data privacy and security laws, we may be contractually subject to industry standards adopted by industry groups and may become subject to such obligations in the future. We may also be bound by other contractual obligations related to data privacy and security, and our efforts to comply with such obligations may not be successful. We may publish privacy policies, marketing materials, and other statements, such as compliance with certain certifications or self-regulatory principles, regarding data privacy and security. If these policies, materials or statements are found to be deficient, lacking in transparency, deceptive, unfair, or misrepresentative of our practices, we may be subject to investigation, enforcement actions by regulators, or other adverse consequences.

Obligations related to data privacy and security are quickly changing, becoming increasingly stringent, and creating regulatory uncertainty. Additionally, these obligations may be subject to differing applications and interpretations, which may be inconsistent or conflict among jurisdictions. Preparing for and complying with these obligations requires us to devote significant resources and may necessitate changes to our services, information technologies, systems, and practices and to those of any third parties that process personal data on our behalf.

We may at times fail (or be perceived to have failed) in our efforts to comply with our data privacy and security obligations. Moreover, despite our efforts, our personnel or third parties on whom we rely on may fail to comply with such obligations, which could negatively impact our business operations. If we or the third parties on which we rely fail, or are perceived to have failed, to address or comply with applicable data privacy and security obligations, we could face significant consequences, including but not limited to: government enforcement actions (e.g., investigations, fines, penalties, audits, inspections, and similar); litigation (including class-action claims); additional reporting requirements and/or oversight; bans on processing personal data; and orders to destroy or not use personal data. Any of these events could have a material adverse effect on our reputation, business, or financial condition, including but not limited to loss of customers; inability to process personal data or to operate in certain jurisdictions; limited ability to develop or commercialize our products; expenditure of time and resources to defend any claim or inquiry; adverse publicity; or substantial changes to our business model or operations.

If we fail to comply with our reporting and payment obligations under the Medicaid Drug Rebate Program or other governmental pricing programs in the U.S., we could be subject to additional reimbursement requirements, fines, sanctions and exposure under other laws which could have a material adverse effect on our business, results of operations and financial condition.

We participate in the Medicaid Drug Rebate Program, as administered by CMS, and other federal and state government pricing programs in the U.S., and we may participate in additional government pricing programs in the future. These programs generally require us to pay rebates or otherwise provide discounts to government payors in connection with drugs that are dispensed to beneficiaries/recipients of these programs. In some cases, such as with the Medicaid Drug Rebate Program, the rebates are based on pricing that we report on a monthly and quarterly basis to the government agencies that administer the programs. Pricing requirements and rebate/discount calculations are complex, vary among products and programs, and are often subject to interpretation by governmental or regulatory agencies and the courts. The requirements of these programs, including, by way of example, their respective terms and scope, change frequently. For example, on March 11, 2021, President Biden signed the American Rescue Plan Act of 2021 into law, which eliminates the statutory Medicaid drug rebate cap, currently set at 100% of a drug's average manufacturer price (AMP), for single source and innovator multiple source drugs, beginning January 1, 2024. Responding to current and future changes may increase our costs, and the complexity of compliance will be time consuming. Invoicing for rebates is provided in arrears, and there is frequently a time lag of up to several months between the sales to which rebate notices relate and our receipt of those notices, which further complicates our ability to accurately estimate and accrue for rebates related to the Medicaid program as implemented by individual states. Thus, there can be no assurance that we will be able to identify all factors that may cause our discount and rebate payment obligations to vary from period to period, and our actual results may differ significantly from our estimated allowances for discounts and rebates. Changes in estimates and assumptions may have a material adverse effect on our business, results of operations and financial condition.

In addition, the HHS Office of Inspector General and other Congressional, enforcement and administrative bodies have recently increased their focus on pricing requirements for products, including, but not limited to the methodologies used by manufacturers to calculate AMP, and best price (BP), for compliance with reporting requirements under the Medicaid Drug Rebate Program. We are liable for errors associated with our submission of pricing data and for any overcharging of government payors. For example, failure to submit monthly/quarterly AMP and BP data on a timely basis could result in significant civil monetary penalties for each day the submission is late beyond the due date. Failure to make necessary disclosures and/or to identify overpayments could result in allegations against us under the civil False Claims Act and other laws and regulations. Any required refunds to the U.S. government or responding to a government investigation or enforcement action would be expensive and time consuming and could have a material adverse effect on our business, results of operations and financial condition. In addition, in the event that the CMS were to terminate our rebate agreement, no federal payments would be available under Medicaid or Medicare for our covered outpatient drugs.

We could face liability if a regulatory authority determines that we are promoting NUPLAZID or DAYBUE for any "off-label" uses.*

A company may not promote "off-label" uses for its drug products. An off-label use is the use of a product for an indication or patient population that is not described in the product's FDA-approved label in the U.S. or for uses in other jurisdictions that differ from those approved by the applicable regulatory agencies. Physicians, on the other hand, may prescribe products for off-label uses. Although the FDA and other regulatory agencies do not regulate a physician's choice of drug treatment made in the physician's independent medical judgment, they do restrict promotional communications from pharmaceutical companies or their sales force with respect to off-label uses of products for which marketing clearance has not been issued. A company that is found to have promoted off-label use of its product may be subject to significant liability, including civil and criminal sanctions. We intend to comply with the requirements and restrictions of the FDA and other regulatory agencies with respect to our promotion of NUPLAZID, DAYBUE and any other products we may market, but we cannot be sure that the FDA or other regulatory agencies will agree that we have not violated their restrictions. As a result, we may be subject to criminal and civil liability. In addition, our management's attention could be diverted to handle any such alleged violations. A significant number of pharmaceutical companies have been the target of inquiries and investigations by various U.S. federal and state regulatory, investigative, prosecutorial and administrative entities in connection with the promotion of products for unapproved uses and other sales practices, including the Department of Justice (DOJ), and various U.S. Attorneys' Offices, the HHS Office of Inspector General, the FDA, the Federal Trade Commission and various state Attorneys General offices. These investigations have alleged violations of various U.S. federal and state laws and regulations, including claims asserting antitrust violations, violations of the FDCA, the civil False Claims Act, the Prescription Drug Marketing Act, anti-kickback laws, and other alleged violations in connection with the promotion of products for unapproved uses, pricing and Medicare and/or Medicaid reimbursement. If the FDA, DOJ, or any other governmental agency initiates an enforcement action against us, or if we are the subject of a qui tam suit and it is determined that we violated prohibitions relating to the promotion of products for unapproved uses, we could be subject to substantial civil or criminal fines or damage awards and other sanctions such as consent decrees and corporate integrity agreements pursuant to which our activities would be subject to ongoing scrutiny and monitoring to ensure compliance with applicable laws and regulations. Any such fines, awards or other sanctions would have an adverse effect on our revenue, business, financial prospects, and reputation.

Changes at the FDA and other government agencies could delay or prevent new products from being developed or commercialized in a timely manner or otherwise prevent those agencies from performing normal functions on which the operation of our business may rely, which could negatively impact our business.

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

Disruptions at the FDA and other agencies may also slow the time necessary for new drugs to be reviewed and/or approved by necessary government agencies, which would adversely affect our business. For example, over the last several years, including beginning on December 22, 2018 and ending on January 25, 2019, the U.S. government has shut down several times and certain regulatory agencies, such as the FDA, have had to furlough critical government employees and stop critical activities. If repeated or prolonged government shutdowns occur, it could significantly impact the ability of the FDA to timely review and process our regulatory submissions, and negatively impact other government operations on which we rely, which could have a material adverse effect on our business.

We are subject to stringent regulation in connection with the marketing of NUPLAZID, DAYBUE and any other products derived from our product candidates, which could delay the development and commercialization of our products.*

The pharmaceutical industry is subject to stringent regulation by the FDA and other regulatory agencies in the U.S. and by comparable authorities in other countries. Neither we nor our collaborators can market a pharmaceutical product, including NUPLAZID and DAYBUE, in the U.S. until it has completed rigorous preclinical testing and clinical trials and an extensive regulatory clearance process implemented by the FDA. Satisfaction of regulatory requirements typically takes many years, depends upon the type, complexity and novelty of the product, and requires substantial resources. Even if regulatory approval is obtained, the FDA and other regulatory agencies may impose significant restrictions on the indicated uses, conditions for use, labeling, advertising, promotion, and/or marketing of such products, and requirements for post-approval studies, including additional research and development and clinical trials. These limitations may limit the size of the market for the product or result in the incurrence of additional costs. Any delay or failure in obtaining required approvals could have a material adverse effect on our ability to generate revenues from the particular product candidate.

Outside the U.S., the ability to market a product is contingent upon receiving approval from the appropriate regulatory authorities. The requirements governing the conduct of clinical trials, marketing authorization, pricing, and reimbursement vary widely from country to country. Only after the appropriate regulatory authority is satisfied that adequate evidence of safety, quality, and efficacy has been presented will it grant a marketing authorization. Approval by the FDA does not automatically lead to the approval by regulatory authorities outside the U.S. and, similarly, approval by regulatory authorities outside the U.S. will not automatically lead to FDA approval.

In addition, U.S. and foreign government regulations control access to and use of some human or other tissue samples in our research and development efforts. U.S. and foreign government agencies may also impose restrictions on the use of data derived from human or other tissue samples. Accordingly, if we fail to comply with these regulations and restrictions, the commercialization of our product candidates may be delayed or suspended, which may delay or impede our ability to generate product revenues.

If our competitors develop and market products that are more effective than NUPLAZID, DAYBUE or our other product candidates, they may reduce or eliminate our commercial opportunity.*

Competition in the pharmaceutical and biotechnology industries is intense and expected to increase. We face competition from pharmaceutical and biotechnology companies, as well as numerous academic and research institutions and governmental agencies, both in the U.S. and abroad. Some of these competitors have products or are pursuing the development of drugs that target the same diseases and conditions that are the focus of our drug development programs.

For example, the use of NUPLAZID for the treatment of PDP competes with off-label use of various antipsychotic drugs, including the generic drugs quetiapine, clozapine, risperidone, aripiprazole, and olanzapine. Pimavanserin for the treatment of negative symptoms of schizophrenia, if approved for that indication, would compete with off-label use of Vraylar, marketed by Allergan, Rexulti, marketed by Otsuka Pharmaceutical Co., Ltd., Latuda, marketed by Sunovion Pharmaceuticals Inc., Caplyta, marketed by IntraCellular Therapeutics and various generic drugs, including quetiapine, clozapine, risperidone, aripiprazole, and olanzapine. In addition, DAYBUE will compete indirectly with off-label usage of branded and generic prescription medications targeted at individual symptoms of Rett syndrome, including antiepileptics, antipsychotics, antidepressants and benzodiazepines. In

addition, Anavex has a product, Anavex 2-73 in development for the potential treatment of Rett syndrome. Several academic institutions and pharmaceutical companies are currently conducting clinical trials for the treatment of various symptoms of Rett syndrome.

Many of our competitors and their collaborators have significantly greater experience than we do in the following:

- identifying and validating targets;
- screening compounds against targets;
- preclinical studies and clinical trials of potential pharmaceutical products;
- obtaining FDA and other regulatory approvals; and
- commercializing pharmaceutical products.

In addition, many of our competitors and their collaborators have substantially greater capital and research and development resources, manufacturing, sales and marketing capabilities, and production facilities. Smaller companies also may prove to be significant competitors, particularly through proprietary research discoveries and collaboration arrangements with large pharmaceutical and established biotechnology companies. Many of our competitors have products that have been approved or are in advanced development and may develop superior technologies or methods to identify and validate drug targets and to discover novel small molecule drugs. Our competitors, either alone or with their collaborators, may succeed in developing drugs that are more effective, safer, more affordable, or more easily administered than ours and may achieve patent protection or commercialize drugs sooner than us. Our competitors may also develop alternative therapies that could further limit the market for any drugs that we may develop. Our failure to compete effectively could have a material adverse effect on our business.

If product liability lawsuits are brought against us, we may incur substantial liabilities and may be required to limit commercialization of NUPLAZID, DAYBUE or any other product for which we obtain regulatory approval, or development or commercialization of our product candidates.*

We face an inherent risk of product liability as a result of the commercial sales of NUPLAZID and DAYBUE in the U.S. and the clinical testing of our product candidates, and will face an even greater risk following commercial launch of NUPLAZID in additional jurisdictions, if approved, or if we engage in the clinical testing of new product candidates or commercialize any additional products. For example, we may be sued if NUPLAZID, DAYBUE or any other product we develop allegedly causes injury or is found to be otherwise unsuitable for administration in humans. Any such product liability claims may include allegations of defects in manufacturing, defects in design, a failure to warn of dangers inherent in the product, negligence, strict liability or a breach of warranties. Claims could also be asserted under state consumer protection acts. If we cannot successfully defend ourselves against product liability claims, we may incur substantial liabilities or be required to limit commercialization of our product candidates. Even successful defense would require significant financial and management resources. Regardless of the merits or eventual outcome, liability claims may result in:

- decreased demand for our products or product candidates that we may develop;
- injury to our reputation;
- withdrawal of clinical trial participants;
- initiation of investigations by regulators;
- costs to defend the related litigation;
- a diversion of management’s time and our resources;
- substantial monetary awards to trial participants or patients;
- product recalls, withdrawals or labeling, marketing or promotional restrictions;
- loss of revenue;
- exhaustion of any available insurance and our capital resources;
- the inability to commercialize our products or product candidates; and
- a decline in our stock price.

Although we currently have product liability insurance that covers our clinical trials and the commercialization of NUPLAZID and DAYBUE, we may need to increase and expand this coverage, including if we commence larger scale trials and if other product candidates are approved for commercial sale. This insurance may be prohibitively expensive or may not fully cover our potential liabilities. Inability to obtain sufficient insurance coverage at an acceptable cost or otherwise to protect against potential product liability claims could prevent or inhibit the commercialization of products that we or our collaborators develop. If we determine that it is prudent to increase our product liability coverage, we may be unable to obtain such increased coverage on acceptable terms or at all. Our insurance policies also have various exclusions, and we may be subject to a product liability claim for which we have no coverage. Our liability could exceed our total assets if we do not prevail in a lawsuit from any injury caused by our drug products. Product liability claims could have a material adverse effect on our business and results of operations.

If our information technology systems or data, or those of third parties upon which we rely, are or were compromised, we could experience adverse consequences resulting from such compromise, including but not limited to regulatory investigations or actions, interruptions to operations or clinical trials, reputational harm, litigation, fines and penalties, disruptions of our business operations, and a loss of customers or sales.*

In the ordinary course of our business, we, or the third parties upon which we rely, process, collect, receive, store, use, transmit, transfer, make accessible, protect, secure, dispose of, disclose and share proprietary, confidential, and sensitive data, including personal data (such as health-related data), intellectual property, and trade secrets.

Cyberattacks, malicious internet-based activity, online and offline fraud and other similar activities threaten the confidentiality, integrity, and availability of our sensitive information and information technology systems, and those of the third parties upon which we rely. These threats are prevalent, continue to rise, and are becoming increasingly difficult to detect. These threats come from a variety of sources, including traditional computer “hackers,” threat actors, personnel misconduct or error (such as through theft or misuse), organized criminal threat actors, sophisticated nation-states, and nation-state-supported actors. Some actors now engage and are expected to continue to engage in cyber-attacks, including without limitation nation-state actors for geopolitical reasons and in conjunction with military conflicts and defense activities. During times of war and other major conflicts, we and the third parties upon which we rely may be vulnerable to a heightened risk of these attacks, including retaliatory cyber-attacks, that could materially disrupt our systems and operations, supply chain, and ability to produce, sell and distribute our goods and services.

We and the third parties upon which we rely are subject to a variety of evolving threats, including but not limited to, social engineering attacks (including through phishing attacks), malicious code (such as viruses and worms), malware (including as a result of advanced persistent threat intrusions), denial-of-service attacks (such as credential stuffing), personnel misconduct or error, ransomware attacks, supply-chain attacks, software bugs, server malfunction, software or hardware failures, loss of data or other information technology assets, adware, telecommunications failures, earthquakes, fire, flood, and other similar threats.

Ransomware attacks, including by organized criminal threat actors, nation-states, and nation-state-supported actors, are becoming increasingly prevalent and severe and can lead to significant interruptions, delays, or outages in our operations, disruption of clinical trials, loss of data (including data related to clinical trials) and income, significant extra expenses to restore data or systems, reputational harm and the diversion of funds. Extortion payments may alleviate the negative impact of a ransomware attack, but we may be unwilling or unable to make such payments (including, for example, if applicable laws or regulations prohibit such payments). Remote work has become more common and has increased risks to our information technology systems and data, as more of our employees work from home, utilizing network connections, computers and devices outside our premises, including at home, while in transit or in public locations. Future or past business transactions (such as acquisitions or integrations) could expose us to additional cybersecurity risks and vulnerabilities, as our systems could be negatively affected by vulnerabilities present in acquired or integrated entities’ systems and technologies. Furthermore, we may discover security issues that were not found during due diligence of such acquired or integrated entities, and it may be difficult to integrate companies into our information technology environment and security program.

We rely on third-party service providers and technologies to operate critical business systems to process sensitive information in a variety of contexts, including, without limitation, cloud-based infrastructure, drug suppliers, data center facilities, encryption and authentication technology, employee email, content delivery to customers, and other functions. Our ability to monitor these third parties’ information security practices is limited, and these third parties may not have adequate information security measures in place. In addition, supply-chain attacks have increased in frequency and severity, and we cannot guarantee that third parties’ infrastructure in our supply chain or our third-party partners’ supply chains have not been compromised. For example, in May 2021, a key drug supplier notified us of a ransomware attack on our supplier’s systems; however, to date we found no indication that our personal data was exposed.

Any of the previously identified or similar threats could cause a security incident or other interruption that could result in unauthorized, unlawful, or accidental acquisition, modification, destruction, loss, alteration, encryption, disclosure of, or access to our sensitive information or our information technology systems, or those of the third parties upon whom we rely. A security incident or other interruption could disrupt our ability (and that of third parties upon whom we rely) to provide our products.

We may expend significant resources, fundamentally change our business activities and practices (including our clinical trials) to try to protect against security incidents. Certain data privacy and security obligations may require us to implement and maintain specific security measures or industry-standard or reasonable security measures to protect our information technology systems and sensitive information. While we have implemented security measures designed to protect against security incidents, there can be no assurance that these measures will be effective. We take steps to detect and remediate vulnerabilities, but we may be unable in the future to detect vulnerabilities in our information technology systems (including our products) because such threats and techniques change frequently and are often sophisticated in nature. Therefore, such vulnerabilities could be exploited but may not be detected until after a security incident has occurred. These vulnerabilities pose material risks to our business Further, we may experience delays in developing and deploying remedial measures designed to address any such identified vulnerabilities.

Applicable data privacy and security obligations may require us to notify relevant stakeholders of security incidents. Such disclosures are costly, and the disclosure or the failure to comply with such requirements could lead to adverse consequences. If we (or a third party upon whom we rely) experience a security incident or are perceived to have experienced a security incident, we may experience adverse consequences. These consequences may include: government enforcement actions (for example, investigations, fines, penalties, audits, and inspections); additional reporting requirements and/or oversight; restrictions on processing sensitive information (including personal data); litigation (including class claims); indemnification obligations; negative publicity; reputational harm; monetary fund diversions; interruptions in our operations (including availability of data); financial loss; and other similar harms. Security incidents and attendant consequences may cause customers to stop using our products, deter new customers from using our products, and negatively impact our ability to grow and operate our business.

Our contracts may not contain limitations of liability, and even where they do, there can be no assurance that limitations of liability in our contracts are sufficient to protect us from liabilities, damages, or claims related to our data privacy and security obligations.

In addition, our insurance coverage may not be adequate or sufficient in type or amount to protect us from or to mitigate liabilities arising out of our privacy and security practices. The successful assertion of one or more large claims against us that exceeds our available insurance coverage, or results in changes to our insurance policies (including premium increases or the imposition of large deductible or co-insurance requirements), could have an adverse effect on our business.

In addition to experiencing a security incident, third parties may gather, collect, or infer sensitive information about us from public sources, data brokers or other means that reveals competitively sensitive details about our organization and could be used to undermine our competitive advantage or market position.

Risks Related to Our Common Stock

Our stock price historically has been, and is likely to remain, highly volatile.*

The market prices for securities of biotechnology companies in general, and drug discovery and development companies in particular, have been highly volatile and may continue to be highly volatile in the future. From the period between January 3, 2023 to July 31, 2023, the closing price of our common stock has ranged from a low of $16.32 per share to a high of $33.47 per share. Furthermore, especially as we and our market capitalization have grown, the price of our common stock has been increasingly affected by quarterly and annual comparisons with the valuations and recommendations of the analysts who cover our business. The following factors, in addition to other risk factors described in this section, may have a significant impact on the market price of our common stock:

- the success of our commercialization of NUPLAZID in the U.S. for the treatment of hallucinations and delusions associated with PDP and DAYBUE in the U.S. for the treatment of Rett syndrome;
- the status and cost of development and commercialization of our product candidates, including compounds being developed under our collaborations;
- whether we acquire or in-license additional product candidates or products, and the status of development and commercialization of such product candidates or products;

- the status and cost of development and commercialization of pimavanserin for indications other than in PDP, including ADP, and in jurisdictions other than the U.S.;
- any other communications or guidance from the FDA or other regulatory authorities that pertain to NUPLAZID, DAYBUE or our product candidates;
- the status and cost of our post-marketing commitments for NUPLAZID;
- the initiation, termination, or reduction in the scope of our collaborations or any disputes or developments regarding our collaborations;
- market conditions or trends related to biotechnology and pharmaceutical industries, or the market in general;
- announcements of technological innovations, new products, or other material events by our competitors or us, including any new products that we may acquire or in-license;
- disputes or other developments concerning our proprietary and intellectual property rights;
- fluctuations in our operating results;
- changes in, or failure to meet, securities analysts' or investors' expectations of our financial performance;
- our failure to meet applicable Nasdaq listing standards and the possible delisting of our common stock from the Nasdaq Stock Market;
- additions or departures of key personnel;
- discussions of our business, products, financial performance, prospects, or stock price by the financial and scientific press and online investor communities such as blogs and chat rooms;
- public concern as to, and legislative action with respect to, genetic testing or other research areas of biopharmaceutical companies, the pricing and availability of prescription drugs, or the safety of drugs and drug delivery techniques;
- regulatory developments in the U.S. and in foreign countries;
- changes in the structure of healthcare payment systems;
- the announcement of, or developments in, any litigation matters;
- disruptions caused by geopolitical or macroeconomic developments or other business interruptions, including, for example, recent and potential future disruptions in access to bank deposits or lending commitments due to bank failures, the ongoing conflict between Ukraine and Russia and related sanctions; and
- economic and political factors, including but not limited to economic and financial crises, wars, terrorism, and political unrest.

In the past, following periods of volatility in the market price of a particular company's securities, securities class action litigation has often been brought against that company. For example, we, and certain of our current and former officers and directors, are subject to numerous lawsuits related to prior statements about NUPLAZID and our sNDA seeking approval of pimavanserin for the treatment of hallucinations and delusions associated with DRP, as described in "Legal Proceedings". If we are not successful in defense of these claims, we may have to make significant payments to, or other settlements with, our stockholders and their attorneys. Even if such claims are not successful, the litigation has resulted in additional costs in the past and could result in further substantial costs and diversion of our management's attention and resources in the future, which could have a material adverse effect on our business, operating results or financial condition.

If we or our stockholders sell substantial amounts of our common stock, the market price of our common stock may decline.

A significant number of shares of our common stock are held by a small number of stockholders. Sales of a significant number of shares of our common stock, or the expectation that such sales may occur, could significantly reduce the market price of our common stock. In connection with our March 2014 public offering of common stock, we agreed to provide resale registration rights for the shares of our common stock held by entities affiliated with one of our principal stockholders and two of our directors, Julian C. Baker and Dr. Stephen R. Biggar, which we refer to as the Baker Entities. In connection with our January 2016 public offering of common stock, we entered into a formal registration rights agreement with the Baker Entities to provide for these rights. Under the registration rights agreement, we have agreed that, if at any time and from time to time, the Baker Entities demand that we register their shares of our common stock for resale under the Securities Act, we would be obligated to effect such registration. On May 3, 2019, we filed a registration statement covering the sale of up to 40,203,111 shares of our common stock, which includes 489,269

shares of our common stock issuable upon the exercise of warrants that were owned by the Baker Entities as of April 29, 2019, and which represented approximately 28 percent of our outstanding shares at the time. Our registration obligations under this registration rights agreement, which cover all shares now held or later acquired by the Baker Entities, will be in effect for up to 10 years, and include our obligation to facilitate certain underwritten public offerings of our common stock by the Baker Entities in the future. If the Baker Entities sell a large number of our shares, or the market perceives that the Baker Entities intend to sell a large number of our shares, this could adversely affect the market price of our common stock. We also may elect to sell from time to time an indeterminate number of shares on our own behalf pursuant to a registration statement or in a private placement. Our stock price may decline as a result of the sale of the shares of our common stock included in any of these registration statements or future financings.

If our officers, directors, and largest stockholders choose to act together, they may be able to significantly influence our management and operations, acting in their best interests and not necessarily those of our other stockholders.

Our directors, executive officers and holders of 5% or more of our outstanding common stock and their affiliates beneficially own a substantial portion of our outstanding common stock. As a result, these stockholders, acting together, have the ability to significantly influence all matters requiring approval by our stockholders, including the election of all of our board members, amendments to our certificate of incorporation, going-private transactions, and the approval of mergers or other business combination transactions. The interests of this group of stockholders may not always coincide with our interests or the interests of other stockholders and they may act in a manner that advances their best interests and not necessarily those of our other stockholders.

Anti-takeover provisions in our charter documents and under Delaware law may make an acquisition of us more complicated and may make the removal and replacement of our directors and management more difficult.

Our amended and restated certificate of incorporation and amended and restated bylaws contain provisions that may delay or prevent a change in control, discourage bids at a premium over the market price of our common stock and adversely affect the market price of our common stock and the voting and other rights of the holders of our common stock. These provisions may also make it difficult for stockholders to remove and replace our board of directors and management. These provisions:

- establish that members of the board of directors may be removed only for cause upon the affirmative vote of stockholders owning at least a majority of our capital stock;
- authorize the issuance of “blank check” preferred stock that could be issued by our board of directors to increase the number of outstanding shares and prevent or delay a takeover attempt;
- limit who may call a special meeting of stockholders;
- establish advance notice requirements for nominations for election to the board of directors or for proposing matters that can be acted upon at stockholder meetings;
- prohibit our stockholders from making certain changes to our amended and restated certificate of incorporation or amended and restated bylaws except with $66^{2/3}$% stockholder approval; and
- provide for a board of directors with staggered terms.

We are also subject to provisions of the Delaware corporation law that, in general, prohibit any business combination with a beneficial owner of 15% or more of our common stock for three years unless the holder’s acquisition of our stock was approved in advance by our board of directors. Although we believe these provisions collectively provide for an opportunity to receive higher bids by requiring potential acquirors to negotiate with our board of directors, they would apply even if the offer may be considered beneficial by some stockholders.

We do not intend to pay dividends on our common stock in the foreseeable future; as such, you must rely on stock appreciation for any return on your investment.

To date, we have not paid any cash dividends on our common stock, and we do not intend to pay any dividends in the foreseeable future. Instead, we intend to retain any future earnings to fund the development and growth of our business. For this reason, the success of an investment in our common stock, if any, will depend on the appreciation of our common stock, which may not occur. There is no guarantee that our common stock will appreciate, and therefore, a holder of our common stock may not realize a return on his or her investment.

General Risk Factors

Our management has broad discretion over the use of our cash and we may not use our cash effectively, which could adversely affect our results of operations.

Our management has significant flexibility in applying our cash resources and could use these resources for corporate purposes that do not increase our market value, or in ways with which our stockholders may not agree. We may use our cash resources for corporate purposes that do not yield a significant return or any return at all for our stockholders, which may cause our stock price to decline.

We have incurred, and expect to continue to incur, significant costs as a result of laws and regulations relating to corporate governance and other matters.

Laws and regulations affecting public companies, including provisions of the Dodd-Frank Wall Street Reform and Consumer Protection Act that was enacted in July 2010, the provisions of the Sarbanes-Oxley Act of 2002 (SOX), and rules adopted or proposed by the SEC and by The Nasdaq Stock Market, have resulted in, and will continue to result in, significant costs to us as we evaluate the implications of these rules and respond to their requirements. In the future, if we are not able to issue an evaluation of our internal control over financial reporting, as required, or we or our independent registered public accounting firm determine that our internal control over financial reporting is not effective, this shortcoming could have an adverse effect on our business and financial results and the price of our common stock could be negatively affected. New rules could make it more difficult or more costly for us to obtain certain types of insurance, including director and officer liability insurance, and we may be forced to accept reduced policy limits and coverage or incur substantially higher costs to obtain the coverage that is the same or similar to our current coverage. The impact of these events could also make it more difficult for us to attract and retain qualified persons to serve on our board of directors and board committees, and as our executive officers. We cannot predict or estimate the total amount of the costs we may incur or the timing of such costs to comply with these rules and regulations.

Adverse securities and credit market conditions may significantly affect our ability to raise capital.

Historically, turmoil and volatility in the financial markets (including recent volatility as a result of geopolitical and macroeconomic developments such as the ongoing conflict between Ukraine and Russia) have adversely affected the market capitalizations of many biotechnology companies, and generally made equity and debt financing more difficult to obtain. These events, coupled with other factors, may limit our access to financing in the future. This could have a material adverse effect on our ability to access funding on acceptable terms, or at all, and our stock price may suffer further as a result.

ITEM 6. EXHIBITS

Exhibit Number	Description
3.1	Amended and Restated Certificate of Incorporation, as amended (incorporated by reference to Exhibit 3.1 to the Registrant's Quarterly Report on Form 10-Q, filed August 6, 2015).
3.2	Certificate of Amendment of Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.2 to the Registrant's Annual Report on Form 10-K, filed February 24, 2021).
3.3	Amended and Restated Bylaws (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K, filed September 12, 2013).
4.1	Form of common stock certificate of the Registrant (incorporated by reference to Exhibit 4.1 to Registration Statement No. 333-52492).
4.2	Form of Amended and Restated Warrant to Purchase Common Stock issued to purchasers in a private placement on December 17, 2012 (incorporated by reference to Exhibit 4.2 to the Registrant's Annual Report on Form 10-K, filed on February 27, 2019).
10.1[a]	Joint Venture and License Agreement, dated July 13, 2023, by and between the Registrant and Neuren Pharmaceuticals Ltd.
31.1	Certification of Stephen R. Davis, Chief Executive Officer, pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification of Mark C. Schneyer, Executive Vice President and Chief Financial Officer, pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1	Certification of Stephen R. Davis, Chief Executive Officer, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2	Certification of Mark C. Schneyer, Executive Vice President and Chief Financial Officer, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101	The following financial statements from the Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2023, filed on August 2, 2023, formatted in iXBRL (Inline Extensible Business Reporting Language), are filed herewith: (i) Condensed Consolidated Balance Sheets, (ii) Condensed Consolidated Statements of Operations, (iii) Condensed Consolidated Statements of Comprehensive Loss, (iv) Condensed Consolidated Statements of Cash Flows, (v) Condensed Consolidated Statements of Stockholders' Equity and (vi) Notes to Condensed Consolidated Financial Statements.
104	Cover Page Interactive Data File (formatted as inline XBRL and contained in Exhibit 101)

[a] Pursuant to Item 601(b)(10) of Regulation S-K promulgated by the SEC, certain portions of this exhibit have been redacted (indicated by "[…***…]") because the Registrant has determined that the information is not material and is the type that the Registrant treats as private or confidential.

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.

Acadia Pharmaceuticals Inc.

Date: August 2, 2023

By: /s/ Mark C. Schneyer
Mark C. Schneyer
Executive Vice President and Chief Financial Officer
(on behalf of the registrant and as the registrant's Principal Financial Officer)

Exhibit 10.1

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY […*…], HAS BEEN OMITTED BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) IS THE TYPE THAT THE REGISTRANT TREATS AS PRIVATE OR CONFIDENTIAL.**

Joint Venture and Licence Agreement

Neuren Pharmaceuticals Limited
ABN 72 111 496 130

Acadia Pharmaceuticals Inc

Joint Venture and Licence Agreement

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Joint Venture and Licence Agreement

Details

Date	……13 July 2023
Parties	**Neuren Pharmaceuticals Limited** ABN 72 111 496 130 (**Neuren**) of Suite 201, 697 Burke Road, Camberwell, Victoria 3124, Australia
	ACADIA Pharmaceuticals Inc (**ACADIA**) of 12830 El Camino Real, Suite 400, San Diego, California 92130, USA

Background

A Neuren is the owner of the Neuren IP and is entitled to grant ACADIA a licence to use the Neuren IP.

B On 6 August 2018, Neuren granted ACADIA an exclusive licence to use the Trofinetide IP to make, use, sell, offer for sale, import, manufacture, market, promote, and distribute the Trofinetide Compound and any Trofinetide Product within the Trofinetide Field within the Initial Territory (**Initial Licence**).

C Subject to the terms and conditions of this Agreement, the parties have agreed to enter into a joint venture for:

(a) the global commercialization and development of the Trofinetide IP, Trofinetide Compound and Trofinetide Product within the Trofinetide Field; and

(b) the global commercialization and development of NNZ-2591 IP, NNZ-2591 Compound and NNZ-2591 Product within the NNZ-2591 Field.

D To enable the JV to be established and operate as intended:

(i) the parties have agreed to amend and restate the Initial Licence, including to extend the territory in which the Initial Licence operates to include the New Territory; and

(ii) Neuren has agreed to grant to ACADIA an exclusive licence to use the NNZ-2591 IP to make, use, sell, offer for sale, import, manufacture, market, promote, and distribute the NNZ-2591 Compound and any NNZ-2591 Product within the NNZ-2591 Field within the Territory.

E This Agreement sets out the terms and conditions which govern the joint venture, the amended and restated terms and conditions of the Initial Licence and the terms and conditions which govern the licence in respect of NNZ-2591 IP.

AGREED TERMS

1 Definitions and interpretation

1.1 Definitions

In this Agreement, unless expressly provided otherwise:

Affiliate	means, with respect to a party to this Agreement, any person, corporation, partnership, or other entity that controls, is controlled by, or is under common control with that party. For the purposes of this definition, the word "control" (including, with correlative meaning, the terms "controlled by" or "under the common control with") means the actual power, either directly or indirectly through one or more intermediaries, to direct or cause the direction of the management and policies of such entity, whether by the ownership of 50% or more of the voting stock of such entity, or by contract or otherwise.
Agreement	means this agreement, including the recitals, any schedules and any annexures.
Alliance Manager	has the meaning given to that term in clause 5.5(a)
Business Day	means a day other than a Saturday, Sunday or public holiday in Melbourne, Victoria, or San Diego, California (as appropriate).
Change of Control of any Party	means any of the following: (a) either (i) a Third Party acquires directly or indirectly the beneficial ownership of voting securities of such Party; or (ii) the beneficial ownership by a Third Party of voting securities of such Party is increased through stock redemption, cancellation or other recapitalization, in either case of paragraph (a)(i) or (a)(ii), where (A) such Third Party is, directly or indirectly, the beneficial owner of voting securities representing less than 50% of the total voting power of all of the then-outstanding voting securities of such Party immediately prior to such acquisition or increase; and (B) immediately after such acquisition or increase such Third Party is, directly or indirectly, the beneficial owner of voting securities representing more than 50% of the total voting power of all of the then-outstanding voting securities of such Party; (b) the consummation of a merger, consolidation, recapitalization, or reorganization of such Party, in which transaction the beneficial owners of outstanding voting securities of such Party immediately prior to such

	transaction do not beneficially own, directly or indirectly, at least 50% of the total voting power of all of the then-outstanding voting securities of the surviving entity (or its parent entity) immediately following such transaction; (c) the stockholders or equity holders of such Party approve a plan of complete liquidation of such Party, or an agreement for the sale or disposition by such Party of all or a substantial portion of such Party's assets, other than pursuant to the transaction as described above or to an Affiliate; or (d) the sale or other transfer to a Third Party of all or substantially all of such Party's assets, including those relating to the Compound and Product.
CMC	means chemistry manufacturing and controls.
Commencement Date	means the date of execution of this Agreement by the last party to execute it.
Commercialize and **Commercialization**	means all activities undertaken with respect to or in support of the marketing, promotion, selling, offering for sale, and distribution (including importing, exporting, transporting, customs clearance, warehousing, invoicing, handling and delivering the applicable Product to customers) of any Product, including Manufacturing Product for commercial sale, planning, market research, Pre-Marketing, sales force efforts, detailing, advertising, educating, marketing, the creation and approval of Promotional Materials, promoting, importing, exporting, sales, distributing, pricing, customer and government contracting, and medical affairs, including post-marketing safety surveillance and reporting, medical education, medical information, clinical science liaison activities, health economics and outcomes research, publications and investigator initiated research studies.
Commercially Reasonable Efforts	means, in respect of a party, those efforts and resources consistent with the usual practices of that party in pursuing the Development or Commercialization of its own pharmaceutical products that are of similar market potential as the Compound or the relevant Product, taking into account all relevant factors including product labelling or anticipated labelling, present and future market potential, past performance of the Compound or the relevant Product and such party's other pharmaceutical products that are of similar market potential, financial return, medical and clinical considerations, present and future regulatory environment and competitive market conditions, all as measured by the facts and circumstances at the time such efforts are due, and considering, without limitation, the following factors in assessing the efforts and resources used by such party: (a) prompt assignment of responsibility for the relevant obligation to appropriate personnel who are responsible for monitoring progress on an on-going basis;

	(b) establishment and measurement of achievement of objectives for carrying out such obligations; and (c) allocation of resources designed to allow progress with respect to such objectives.
Compound	means any Trofinetide Compound or NNZ-2591 Compound.
Confidential Information	means confidential documents, technology, Know-how or other information (whether or not patentable) actually disclosed or made available by one party or its Affiliates to the other party or its Affiliates pursuant to this Agreement or the Prior Confidentiality Agreement, including without limitation all confidential information regardless of form that relates to the disclosing party, its Affiliates, and their businesses or affairs, any Methodology and any Know-how transferred from one party to the other party pursuant to clauses 4.8 or 7.2.
Control	means, with respect to any Patent, Know-how, trademark or other intellectual property rights, ownership or possession by a party or any of its Affiliates of the ability (without taking into account any rights granted by one party to the other party under the terms of this Agreement) to grant access, a licence or a sublicence to such Patent, Know-how, trademark or other intellectual property right without violating the terms of any agreement or other arrangement with, or necessitating the consent of, any Third Party, at such time that the party would be first required under this Agreement to grant the other party such access, licence or sublicence.
Development	means all activities described in clause 6.1 for the Trofinetide Compound and clause 7.1 for the NNZ-2591 Compound, and otherwise conducted in pursuit of new and revised Marketing Authorisations.
Development Milestone Fees	means the development milestone fees specified in clause 2 of the Fee Schedule.
EMA Region	means all of the European Union member states as of the Commencement Date.
Encumbrance	means any mortgage, lien, hypothecation, charge (whether fixed or floating), bill of sale, caveat, pledge, claim, trust arrangement, preferential right, right of set-off, title retention or other form of encumbrance.
Exclusivity Period	means, on a country by country basis in the Territory and Product by Product basis, the period commencing on the Commencement Date and ending on the latest to occur of: (a) the date of expiry of the last Valid Claim that would be infringed by an authorised sale of the relevant Product in the relevant country; (b) the date of expiry of the term of any data exclusivity right in such country; and

	(c) 10 years after the date of the First Commercial Sale of the Product in such country
FDA	means the United States of America Food and Drug Administration or its successor.
FDA Approval	means the approval by the FDA for a New Drug Application made in respect of any Product.
Fees	means the Upfront Fee, the Development Milestone Fees, the Sales Milestone Fees and the Sub-Licensee Fees.
Field	means, in respect of: (a) Trofinetide Compound and Trofinetide Product, the Trofinetide Field; and (b) NNZ-2591 Compound and NNZ-2591 Product, the NNZ-2591 Field.
First Commercial Sale	means, for a Product, the first sale or transfer of that Product in a region or other regulatory jurisdiction in the Territory by or on behalf of ACADIA or its Affiliate or its Sub-Licensee to a Third Party, other than for evaluation, research or clinical trial purposes or any not-for-profit or compassionate uses, in exchange for cash or some equivalent to which value can be assigned, and following receipt in that part of the Territory of all Marketing Authorisations and other approvals necessary to sell or transfer that Product in that part of the Territory.
Generic Product	means, on a Product-by-Product and country-by-country basis, any pharmaceutical product sold by a Third Party, other than as a Sub-Licensee to this Agreement that: (a) contains the same active ingredients as the applicable Product, in the same dosage form (e.g., oral) as the applicable Product; (b) is approved by the regulatory authority in such country as a substitutable generic for such Product; or (c) is approved in the applicable field by a regulatory authority pursuant to an NDA (or an equivalent application for regulatory approval filed outside the U.S.), contains the active ingredients in the Product, and relies on the finding of safety and/or effectiveness in the regulatory approval of the Product.
Government Agency	means: (a) a government or government department; (b) a governmental, semi-governmental, regulatory or judicial entity or authority; or (c) a person (whether autonomous or not) who is charged with the administration of a law.
Improvements	means any improvement, modification, adaption, innovation or invention specifically relating to any Compound, any Product,

	Methodology or the Neuren IP, whether patentable or not, discovered, made, conceived or generated in the course of activities conducted by or on behalf of a party or its Affiliates (or jointly by both parties or their Affiliates) pursuant to this Agreement, including all Know-how in respect of same, and any test results and other data generated by or on behalf of any party or its Affiliates in respect of any Compound or Product or any Marketing Authorisation of any Product.
IND	means an Investigational New Drug Application filed with the FDA in the United States of America or a corresponding application filed with a Government Agency in any other country in the Territory, in each case together with all amendments and supplements thereto.
Infringement	means: (a) any actual or alleged infringement by a Third Party of any part of the Neuren IP, including pursuant to a Paragraph IV Patent Certification by a Third Party filing an Abbreviated New Drug Application (i.e., an action under the Hatch-Waxman Act); or (b) any person alleging that use or exploitation of any part of the Neuren IP infringes any rights of that person.
Initial Territory	means, subject to clause 23.2(d), the United States, Canada and Mexico.
Intellectual Property Rights	means all intellectual and industrial property rights of whatever nature (whether or not registered or registrable) including, but not limited to: (a) patents, copyrights, designs, trademarks, trade secrets, Know-how and the right to have Confidential Information kept confidential; and (b) any application or right to apply for registration of any of the rights in paragraph (a) and all renewals and extensions of those rights.
Joint Improvement	means an Improvement made or acquired jointly by Neuren and ACADIA in accordance with clause 19.4.
JSC	means the Joint Steering Committee established and operated in accordance with clause 5.1.
JV	means the joint venture between Neuren and ACADIA as described in clause 3.
Know-how	means any information, ideas, data, inventions, methods, processes, techniques, discoveries, works of authorship, results, trade secrets, technology, or materials, including formulations, molecules, assays, reagents, compounds, compositions, human or animal tissue, samples or specimens, and combinations or components thereof, whether or not proprietary or patentable, or public or confidential, and whether stored or transmitted in oral, documentary, electronic or other

	form, including all regulatory documentation, but excluding any such information or materials publicly disclosed in Patents.
Manufacture	means all activities related to the manufacture, processing, formulation, filling, finishing, packaging, labelling, shipping, storage and handling of a Product, including manufacturing process development, process qualification and validation, scale-up, process improvements and optimization, product characterization, stability testing, quality assurance and quality control.
Manufacturing Costs	in respect of a Product means the fully allocated and burdened costs and charges incurred in connection with the Manufacture of that Product as determined in accordance with U.S. generally accepted accounting principles, or when referring to Neuren's Manufacturing Cost, the New Zealand equivalent to International Financial Reporting Standards, and as consistently applied by the party selling the Product. Any indirect cost, or a proportion of it, must only be allocated to the relevant Product to the extent and in the proportion that is reasonable and clearly connected to the Manufacture of the Product, based on quantitative evidence (such as time sheets). Any intercompany transfer pricing markups, distribution costs and any costs not associated with Manufacturing of the Product will be excluded.
Marketing Authorisations	means the approval of a marketing authorisation application, or any equivalent authorisation, in respect of a Product in a Field that is made by a Government Agency located in the Territory and which, once granted, entitles a party to market and sell that Product in that Field in that part of the Territory and in respect of the United States of America, includes the FDA Approval. Marketing Authorisations do not include INDs.
Methodology	means the methodology developed by a party or its Affiliates, and any information related to such methodology provided to the other party by a party or its Affiliates from time to time (in whatever form), in each case relating to the design, Development, Manufacture, production or distribution of a Product, including any Improvements to such methodology.
NDA	means a New Drug Application filed with the FDA in the United States of America or a corresponding application filed with a Government Agency in any other country in the Territory, in each case together with all amendments and supplements thereto.
Net Revenue	means, with respect to a Product in a country or territory, the gross amount invoiced by ACADIA, ACADIA Affiliates and any Sub-Licensee to Third Parties, excluding any Sub-Licensee, for any sale or disposition of that Product in that country or territory (as applicable), less the following deductions to the extent that they are directly related and applicable to sales of the Product: (a) trade, quantity and cash discounts allowed; (b) commissions, discounts, refunds, rebates (including, but not limited to, wholesaler inventory management fees),

chargebacks, retroactive price adjustments, and any other allowances which effectively reduce the net selling price;

(c) actual Product returns and allowances; and

(d) any tax imposed on the production, sale, delivery or use of that Product, including, without limitation, sales, use, excise or value added taxes provided that such tax is included in the gross invoiced amount and a bona fide deduction from gross invoiced sales in ACADIA's external reporting of sales of that Product under U.S. Generally Accepted Accounting Principles ("**US GAAP**").

Such amounts shall be determined from the books and records of ACADIA, ACADIA Affiliates and Sub-Licensees, maintained in accordance with US GAAP or, in the case of ACADIA Affiliates and Sub-Licensees, such similar accounting principles, consistently applied. ACADIA further agrees in determining such amounts, it will use ACADIA's then current standard procedures and methodology, including ACADIA's then current standard exchange rate methodology for the translation of foreign currency sales into U.S. Dollars or, in the case of ACADIA Affiliates and Sub-Licensees, such similar methodology, consistently applied.

For the purposes of calculating Net Revenues, sales or dispositions of Products among ACADIA, ACADIA Affiliates and Sub-Licensees intended for resale shall be excluded from the calculation of Net Revenues, but rather the sale of such Products by ACADIA, ACADIA Affiliates and Sub-Licensees to Third Parties that are not Sub-Licensees shall be included in the calculation of Net Revenues. Net Revenues shall exclude sale or distribution of Products, at or below the Manufacturing Cost, for use for marketing, regulatory, development or charitable purposes, such as clinical trials, compassionate use, named patient use, or indigent patient programs.

For Products which comprise a Compound and at least one other active ingredient, whether packaged together or in the same therapeutic formulation and in any dosage ("**Combination Products**"), the Net Revenues for such Combination Products shall be adjusted by multiplying the actual Net Revenues by the fraction A/(A+B) where A is the actual average of the invoice price (on a per unit basis) of the Product that is part of the Combination Product in the relevant country, if sold separately, and B is the sum of the actual average of the invoice price (on a per unit basis) of the other active component that is part of the Combination Product in the relevant country, if such other active component is sold separately. If the other component is not sold separately, then the actual Net Revenues shall be adjusted by multiplying the actual Net Revenues by the fraction A/C where A is the actual average of the invoice price (on a per unit basis) of the Product that is part of the Combination Product in the relevant country, if sold separately, and C is the actual average of the invoice prices (on a per unit basis) of the Combination Product in the relevant country. If neither of the foregoing applies, then ACADIA shall determine the Net Revenues of the Combination Product in good faith based on

	the respective values of the components of such Combination Product.
Neuren IP	means the Trofinetide IP and the NNZ-2591 IP.
New Indication	means an indication classified as a New Indication in accordance with clause 6.2(d), which has not ceased to be a New Indication in accordance with clause 6.2(e).
New Territory	means, subject to clause 23.2(d), the whole of the world excluding the Initial Territory.
NNZ-2591 Compound	means: (a) NNZ-2591, having the structure set forth in Part B of Exhibit A, including all salts, esters, mixtures, hydrates, isomers, solvates, complexes, isotopologs, polymorphs, resinates, metabolites, impurities, or degradation products of NNZ-2591; and (b) Each of the other compounds that fall within the scope of the formulae set forth in the specifications of the NNZ-2591 Patents, but excludes any Trofinetide Compound.
NNZ-2591 Field	means uses of the NNZ-2591 Compound or any NNZ-2591 Product solely in and for Rett Syndrome and Fragile X Syndrome and excludes any and all uses in and for any other indication.
NNZ-2591 IP	means all of the Intellectual Property Rights in or relating to the NNZ-2591 Compound or any NNZ-2591 Product owned or Controlled by Neuren or its Affiliates, including: (a) the Patents, (b) the Methodology, (c) the Know-how; and (d) any Improvements solely made or acquired by Neuren or its Affiliates during the Term, in or relating to the NNZ-2591 Compound or any NNZ-2591 Product.

NNZ-2591 Patents	means: (a) all patents, certificates of invention, applications for certificates of invention, priority patent filings and patent applications that are: (i) set out in Part B of the Schedule of Patents and Patent Applications; or (ii) that are filed in accordance with clause 20.3 (which will be added to such schedule) or otherwise added to such schedule by agreement in writing between the parties; and (b) any renewals, divisions, continuations (in whole or in part), or requests for continued examination of any of such patents, certificates of invention and patent applications, and any all patents or certificates of invention issuing thereon, and any and all reissues, reexaminations, extensions, divisions, renewals, substitutions, confirmations, registrations, revalidations, revisions, and additions of or to any of the foregoing.
NNZ-2591 Product	means any product developed by or on behalf of Neuren or ACADIA containing a NNZ-2591 Compound as an active ingredient, alone or in combination with one or more other active pharmaceutical ingredient(s), in any dosage form or formulation.
Patents	means the Trofinetide Patents and the NNZ-2591 Patents.
Phase II Clinical Study	means a clinical study for a Product in humans conducted to evaluate the efficacy of the drug for a particular indication or indications in patients with the disease or condition under study and to determine the common short-term side effects and risks associated with the drug, as described in 21 C.F.R. §312.21(b) or the equivalent regulation outside the United States (and any amended or successor regulations).
Phase III Clinical Study	means a human clinical trial for a Product, the principal purpose of which is to gather safety and efficacy data of one or more particular doses in patients being studied that is needed to evaluate the overall benefit and risk relationship of the Product, as more fully defined in 21 C.F.R. §312.21(c) or the equivalent regulation outside the United States (and any amended or successor regulations), and is intended to support approval of an NDA and labeling (or marketing authorisation application).
Pre-Marketing	means all sales and marketing activities undertaken prior to and in preparation for the launch of a Product in the Territory. Pre-Marketing will include market research, key opinion leader development, advisory boards, medical education, disease-related public relations, health care economic studies, sales force training and other pre-launch activities prior to the First Commercial Sale of that Product in a given country or other regulatory jurisdiction in the Territory.

Prior Confidentiality Agreement	means the Confidentiality Deed between Neuren and ACADIA dated […***…].

Product	means any Trofinetide Product or NNZ-2591 Product.
Promotional Materials	means all written, printed, video or graphic advertising, promotional, educational and communication materials (other than any Product labels and package inserts) for marketing, advertising and promoting of the Compound or any Product.
Proposal	has the meaning given in clause 6.2(a).
Primary Party	has the meaning given in clause 20.1.
Quarter	means each period of three consecutive months ending on 31 March, 30 June, 30 September or 31 December in any year.
Region	means any of the Initial Territory or Region A, Region B or Region C as defined in the Fee Schedule.
Regulatory	means all activities regarding filing for, obtaining and maintaining any IND, NDA or Marketing Authorisation, including those described in clause 9, in support of Development and Commercialization activities.
Regulatory Authority	means the federal, national, multinational, state, provincial or local regulatory agency, department, bureau or other governmental entity with authority over the testing, Manufacture, use, storage, import, promotion, marketing or sale of a Product in a country or jurisdiction, including, by way of example the FDA, the European Medicines Agency (EMA) and Japan's Pharmaceuticals and Medical Devices Agency (PMDA).
Royalty	means the royalty payable by ACADIA to Neuren in respect of Products sold by ACADIA, ACADIA's Affiliates and all Sub-Licensees as set forth in clause 15.3 and specified in clause 4 of the Fee Schedule.
Sales Milestone Fees	means the sales milestone fees specified in clause 3 of the Fee Schedule.
Secondary Party	has the meaning given in clause 20.1.
Sub-Licensee	means: (a) any Third Party that has received a sublicence from ACADIA or its Affiliates under the Neuren IP to use, sell, offer for sale or import any Product in the Field in the Territory pursuant to clause 14, beyond the mere right to purchase Products from or to provide services on behalf of ACADIA and its Affiliates; and

	(b) any Third Party appointed by ACADIA or its Affiliates to Manufacture any Compound or Product for ACADIA or its Affiliates.
Sub-Licensee Fee	means the fee specified in clause 5 of the Fee Schedule
Tax	means any tax, levy, impost, duty, charge, deduction, or withholding of whatever kind (together with any related interest, penalty, fine or expense) that is imposed by law or any Government Agency.
Term	has the meaning given to that term in clause 2.
Territory	means the Initial Territory and the New Territory. For clarity, the Territory with respect to Trofinetide Compounds and Trofinetide Products may be separate and distinct from the Territory with respect to NNZ-2591 Compounds and NNZ-2591 Products (i.e. in the event that a given territory is terminated only with respect to a Trofinetide Compound and Trofinetide Product, on the one hand, or a NNZ-2591 Compound and NNZ-2591 Product, on the other hand, and removed from such Territory as a result pursuant to clause 23.2(d)).
Third Party	means any person or entity other than ACADIA, Neuren or their respective Affiliates.
Trofinetide Compound	means: (a) Trofinetide, also known as NNZ-2566, having the structure set forth in Part A of Exhibit A, including all salts, esters, mixtures, hydrates, isomers, solvates, complexes, isotopologs, polymorphs, resinates, metabolites, impurities, or degradation products of trofinetide; and (b) Each of the other compounds that fall within the scope of the formulae set forth in the specifications of the Trofinetide Patents, excluding compounds within the scope of the claims of US patent numbers […***…].
Trofinetide Field	means any and all uses of the Trofinetide Compound or any Trofinetide Product, including in Rett Syndrome and Fragile X Syndrome
Trofinetide IP	means all of the Intellectual Property Rights in or relating to the Trofinetide Compound or any Trofinetide Product owned or Controlled by Neuren or its Affiliates, including: (a) the Patents, (b) the Methodology, (c) the Know-how; and (d) any Improvements solely made or acquired by Neuren or its Affiliates during the Term,

	in or relating to the Trofinetide Compound or any Trofinetide Product.
Trofinetide Patents	means: (a) all patents, certificates of invention, applications for certificates of invention, priority patent filings and patent applications that are: (i) set out in the Part A of the Schedule of Patents and Patent Applications; or
	(ii) that are filed in accordance with clause 20.3 (which will be added to such schedule) or otherwise added to such schedule by agreement in writing between the parties; and (b) any renewals, divisions, continuations (in whole or in part), or requests for continued examination of any of such patents, certificates of invention and patent applications, and any all patents or certificates of invention issuing thereon, and any and all reissues, reexaminations, extensions, divisions, renewals, substitutions, confirmations, registrations, revalidations, revisions, and additions of or to any of the foregoing.
Trofinetide Product	means any product developed by or on behalf of Neuren or ACADIA containing a Trofinetide Compound as an active ingredient, alone or in combination with one or more other active pharmaceutical ingredient(s), in any dosage form or formulation.
Upfront Fee	means the fee specified in clause 1 of the Fee Schedule.
U.S. or United States	means the United States of America and its territories and possessions.
Valid Claim	means a claim of an issued and unexpired Patent, to the extent such claim has not been revoked, held invalid or unenforceable by a patent office, court or other governmental agency of competent jurisdiction in a final order, from which no further appeal can be taken, and which claim has not been disclaimed, denied or admitted to be invalid or unenforceable through reissue, re-examination or disclaimer.

1.2 Words and expressions

In this Agreement, unless the context requires otherwise:

(a) the singular includes the plural and vice versa;

(b) words denoting any gender include all genders;

(c) where a word or phrase is defined, its other grammatical forms have a corresponding meaning;

(d) a reference to a party, clause, paragraph, schedule, or annexure is a reference to a party, clause or paragraph, schedule, or annexure to or of, this Agreement;

(e) a reference to this Agreement includes any schedules or annexures to it;

(f) headings are for convenience and do not affect interpretation;

(g) the background or recitals to this Agreement are adopted as and for part of this Agreement;

(h) a reference to any document or agreement includes a reference to that document or agreement as amended, novated, supplemented, varied or replaced from time to time;

(i) a reference to "$", "US$", "USD" or "dollar" is a reference to the currency of the United States;

(j) a reference to a party includes its executors, administrators, successors, substitutes (including persons taking by novation) and permitted assigns;

(k) a reference to writing includes any method of representing words, figures or symbols in a permanent and visible form;

(l) words and expressions denoting natural persons include bodies corporate, partnerships, associations, firms, governments and governmental authorities and agencies and vice versa;

(m) a reference to any legislation or to any provision of any legislation includes

(i) any modification or re-enactment of the legislation;

(ii) any legislative provision substituted for, and all legislation statutory instruments and regulations, issued under the legislation or provision; and

(iii) where relevant, corresponding legislation in any Australian State or Territory;

(n) no rule of construction applies to the disadvantage of a party because that party was responsible for the preparation of this Agreement or any part of it;

(o) the word "or" means "and/or" unless the context dictates otherwise because the subject of the conjunction are mutually exclusive; and

(p) the words "including", "for example", "such as" or other similar expressions (in any form) are not words of limitation.

2 Term

This Agreement will commence on the Commencement Date and will continue until terminated under clause 22 (or any other clause of this Agreement that gives a party a right to terminate) ("**Term**").

3 Joint Venture

3.1 Establishment of JV

The parties agree to conduct a joint venture, as and from the Commencement Date:

(a) to commercialize and develop the Trofinetide Compound and Trofinetide Product within the Trofinetide Field and within the Territory; and

(b) to commercialize and develop the NNZ-2591 Compound and NNZ-2591 Product within the NNZ-2591 Field and within the Territory,

on the terms and conditions set out in this Agreement.

3.2 Contributions to JV

The parties acknowledge and agree that their respective contributions to the JV will be:

(a) in the case of Neuren, the grant of the licences to ACADIA in accordance with this Agreement for the purposes of the JV and the performance of its other obligations as set out in this Agreement; and

(b) in the case of ACADIA, the provision and application of its expertise and resources within the Territory in relation to the marketing of pharmaceutical products and the performance of its other obligations as set out in this Agreement.

3.3 Sharing of proceeds of JV

(a) In consideration for its participation in the JV and the grant of the licences to ACADIA in accordance with this Agreement, Neuren will be entitled to the Upfront Fee, Development Milestone Fees, Sales Milestone Fees, Sub-Licensee Fee and Royalty in accordance with this Agreement and any other exercise of its rights under this Agreement including by way of example proceeds relating to Manufacturing.

(b) In consideration for its participation in the JV, ACADIA will be entitled to the proceeds of Commercialization of any Compound or Product in the applicable Field in the Territory and any other exercise of its rights under this Agreement, including by way of example proceeds relating to Manufacturing and sublicensing activities.

4 Licences

4.1 Amendment and restatement of Trofinetide Licence

Neuren and its Affiliates hereby confirm and, to the extent not previously granted, grant to ACADIA, for the Term:

(a) an exclusive (even as to Neuren and its Affiliates) licence under the:

(i) Trofinetide IP; and

(ii) Neuren's rights (including any Intellectual Property Rights) in any Joint Improvements in so far as they relate to the Trofinetide Compound, Trofinetide Product or Trofinetide IP or Methodology in respect thereof,

solely to make or have made (both, for the avoidance of doubt, subject to Neuren's rights upon termination as set forth in clause 4.5), use, develop, sell, offer for sale, import, export and otherwise Commercialize, and including the right to Manufacture, have Manufactured, market, promote, advertise, and distribute, any Trofinetide Compound and any Trofinetide Product within the Trofinetide Field and within the Territory; and

(b) the right to grant sub-licences under the Neuren IP to Affiliates and Sub-Licensees in accordance with clause 14,

in accordance with the terms and conditions of this Agreement.

4.2 Grant of NNZ-2591 Licence

Neuren and its Affiliates hereby grant to ACADIA for the Term:

(a) an exclusive (even as to Neuren and its Affiliates) licence under the:

(i) NNZ-2591 IP; and

(ii) Neuren's rights (including any Intellectual Property Rights) in any Joint Improvements in so far as they relate to the NNZ-2591 Compound, NNZ-2591 Product or NNZ-2591 IP or Methodology in respect thereof,

solely to make or have made (both, for the avoidance of doubt, subject to Neuren's reserved rights and/or rights upon termination as set forth in clause 4.5), use, develop, sell, offer for sale, import, export and otherwise Commercialize, and including the right to Manufacture or have Manufactured (both subject to clause 7.2), market, promote, advertise, and distribute, any NNZ-2591 Compound and any NNZ-2591 Product within the NNZ-2591 Field and within the Territory; and

(b) the right to grant sub-licences under the Neuren IP to Affiliates and Sub-Licensees in accordance with clause 14,

in accordance with the terms and conditions of this Agreement.

4.3 Rights personal to ACADIA

Subject to clauses 14 and 29.5, the rights given by this Agreement are personal to ACADIA and are not saleable or transferable in any manner whatsoever except in accordance with this Agreement and ACADIA must not in any way encumber, mortgage or grant rights under this Agreement to any other person except in accordance with this Agreement, and any attempt to do so that is not in accordance with this Agreement will be void.

4.4 Section 365(n) of the Bankruptcy Code

All rights and licences granted under or pursuant to any clause of this Agreement, including the licences granted under this clause 4 are and will otherwise be deemed to be for purposes of Section 365(n) of the United States Bankruptcy Code (Title 11, U.S. Code), as amended (the "**Bankruptcy Code**"), licences of rights to "intellectual property" as defined in Section 101(35A) of the Bankruptcy Code. ACADIA will retain and may fully exercise all of its respective rights and elections under the Bankruptcy Code. Neuren agrees that ACADIA, as licensee of such rights under this Agreement, will retain and may fully exercise all of its rights and elections under the Bankruptcy Code or any other provisions of applicable law outside the United States that provide similar protection for "intellectual property." Any agreements supplemental hereto will be deemed to be "agreements supplementary to" this Agreement for purposes of Section 365(n) of the Bankruptcy Code. Notwithstanding clause 29.14, intellectual property rights as set out in this clause 4.4 shall be dealt with in bankruptcy in accordance with US bankruptcy law.

4.5 Manufacturing rights

(a) Neuren reserves the non-exclusive right under the Neuren IP to Manufacture (or have Manufactured) any NNZ-2591 Compound or NNZ-2591 Product inside the Territory (and, to the extent applicable, to import, export, transport, obtain customs clearance, warehouse, invoice, handle and deliver), but solely where such NNZ-2591 Compound or NNZ-2591 Product is not sold, transferred, otherwise disposed of, used or supplied for use within the NNZ-2591 Field; provided that in the event of termination of this Agreement in a given territory with respect to a given NNZ-2591 Compound or NNZ-2591 Product, then upon such termination, Neuren may Manufacture (or have Manufactured) (and, to the extent applicable, to import, export, transport, obtain customs clearance, warehouse, invoice, handle and deliver) such NNZ-2591 Compound or NNZ-2591 Product inside the Territory only for use or sale within or outside of the NNZ-2591 Field in such terminated territory.

(b) With respect to a given Trofinetide Compound or Trofinetide Product, upon termination of this Agreement in a given territory with respect to such Trofinetide

Compound or Trofinetide Product, Neuren shall have the right to Manufacture (or have Manufactured) such Trofinetide Compound or Trofinetide Product inside the Territory (and, to the extent applicable, to import, export, transport, obtain customs clearance, warehouse, invoice, handle and deliver), only for use or sale of such Trofinetide Compound or Trofinetide Product in such terminated territory.

4.6 No Implied Licence

No right or licence under any intellectual property rights of a party is granted or shall be granted by implication to the other party. All such rights or licences are or shall be granted only as expressly provided in the terms of this Agreement.

4.7 Failure to Develop or Commercialize

(a) If, in any Region, ACADIA ceases, for a period of at least […***…] at any time after the Relevant Date, all activities, in each case in relation to the Trofinetide Product in Rett Syndrome, and provided that such cessation was not:

(i) directly attributable to circumstances outside the reasonable control of ACADIA (including delays due to regulatory or legal reasons); or

(ii) due to ACADIA's determination not to conduct activities in the applicable Region during that […***…] period for a commercially reasonable reason (after giving effect to all applicable factors such as commercially reasonable sequencing of activities across Regions, issues affecting pricing and reimbursement, and having clearly communicated these reasons to Neuren),

Neuren may give notice in writing to ACADIA requiring ACADIA to provide a written report within […***…] of receipt of such notice detailing the steps and activities currently being undertaken and that ACADIA plans to undertake within the following […***…]. The Relevant Date will be:

(iii) with respect to the Initial Territory, following receipt of Marketing Authorisation and applicable regulatory approvals, the date on which any of the following events occurs:

(A) a Change of Control of ACADIA;

(B) ACADIA publicly discloses that it has abandoned Development and Commercialization of Trofinetide Compound or Trofinetide Product; or

(C) ACADIA reports holding "cash and cash equivalents" and "investment securities available for sale" of less than US$[…***…] in the aggregate in its most recent consolidated balance sheet filed with the U.S. Securities and Exchange Commission under the Securities Exchange Act of 1934, as amended;

(iv) with respect to […***…], the […***…];

(v) with respect to […***…], the […***…]; and

(vi) for any territory in […***…], […***…].

(b) If ACADIA:

(i) fails to provide the required report in the applicable timeframe; or

(ii) does not use Commercially Reasonable Efforts to undertake the steps or activities set forth in the report during the subsequent […***…] period,

then

(iii) if the cessation of activities occurs with respect to the Initial Territory, Neuren may terminate this Agreement in accordance with clause 22.1, or

(iv) if the cessation of activities occurs with respect to any part of the New Territory, at the request of Neuren, ACADIA will discuss with Neuren in good faith the circumstances affecting commercially reasonable development and Commercialization of the Trofinetide Product in Rett Syndrome in the applicable Region, including the possibility of seeking Sub-Licensees for the applicable Region. For the avoidance of doubt, except in relation to the Initial Territory, nothing in this clause 4.7 will create any diligence obligation beyond the obligations to use Commercially Reasonable Efforts in the applicable Region as required by this Agreement.

4.8 Technology Transfer and Cooperation for NNZ-2591 (Non-Manufacturing)

Within […***…] from the Commencement Date, Neuren will complete transfer of all Know-how, Methodology, materials, regulatory filings and associated documentation and other correspondence with Regulatory Authorities and other Intellectual Property Rights to ACADIA necessary or reasonably useful to enable ACADIA to practice the licences and rights granted to it under this Agreement with respect to NNZ-2591 other than with respect to Manufacturing or any in-progress Intellectual Property Rights. Any in-progress Intellectual Property Rights will only be transferred once they have been completed. From time to time thereafter, or upon ACADIA's reasonable request during the Term, Neuren shall provide reasonable cooperation to ACADIA with respect to the conduct of the activities pursuant to this Agreement.

5 Joint Steering Committee

5.1 Establishment and function

(a) The parties confirm that the Joint Steering Committee established under the Initial Licence will be and become the Joint Steering Committee under this Agreement ("**JSC**").

(b) Each party will retain the rights, powers and discretion granted to it under this Agreement and no such rights, powers or discretion will be delegated or vested in the JSC unless such delegation or vesting of rights is expressly provided for in this Agreement or the parties expressly agree to such delegation or vesting of rights in writing.

(c) The JSC will only have the powers expressly assigned to the JSC by this Agreement, and will not have any power to amend, modify or waive compliance with this Agreement.

(d) Without limiting clause 5.1(c), and except as otherwise provided in clause 5.1(e)(iii) and clause 5.6, the JSC's powers in respect of NNZ-2591 Compound or NNZ-2591 Product will only be in respect of any activities related solely to NNZ-2591 Compound or NNZ-2591 Product in the NNZ-2591 Field in the applicable Territory and the JSC will not have any power over any activities in respect of NNZ-2591 Compound or NNZ-2591 Product which do not relate solely to the NNZ-2591 Field in the applicable Territory.

(e) The JSC will perform the following functions:

(i) acting as the governing body of the JV;

(ii) remaining informed of the development and contents of all material regulatory submissions to Government Agencies for any Compound or Product in the applicable Field and Territory for Marketing Authorisations and all necessary filing and registration activities related to Marketing Authorisations for any Compound or Product in the applicable Field and applicable Territory;

(iii) subject to the information-sharing obligations set forth in clause 5.6, serve as a forum for consideration of and exchanging data and results generated by each party relating to any NNZ-2591 Compound or NNZ-2591 Product in and outside the applicable Field and applicable Territory;

(iv) review the development plans prepared by ACADIA in accordance with clause 6.1(b) and any updates to them;

(v) review and approve (if appropriate) any Proposal to develop the Trofinetide Compound for use in an indication other than Rett Syndrome and Fragile X Syndrome in accordance with clause 6.2;

(vi) subject to the information-sharing obligations set forth in clause 5.6 and clause 7.2, responsibility for monitoring and reviewing each party's Regulatory, manufacturing, CMC, Development or Commercialization activities in respect of any NNZ-2591 Compound or NNZ-2591 Product to the extent they relate to the NNZ-2591 Field in the applicable Territory;

(vii) subject to the information-sharing obligations set forth in clause 5.6 and clause 7.2, provide development, review and oversight of each party's CMC and non-indication specific clinical and non-clinical studies for NNZ-2591 Compound or NNZ-2591 Product to the extent they relate to the NNZ-2591 Field in the applicable Territory;

(viii) inform and raise for discussion and consideration all material activities or decisions with respect to any Compound or Product in the applicable

Field (e.g., initiation or termination of any study and material filings with regulatory authorities);

(ix) review, comment on and approve any proposed scientific or academic publication by either party pursuant to the procedures in clause 18.11(a); and

(x) such other responsibilities as may be assigned to the JSC pursuant to this Agreement or as may be mutually agreed upon in writing by the parties from time to time.

5.2 Membership

(a) Neuren and ACADIA will each designate […***…] representatives (or any other number agreed in writing between the parties) of appropriate seniority, expertise and experience to serve on the JSC by written notice to the other party, such representatives to include individuals who have clinical trial and regulatory experience and expertise in pharmaceutical drug Development. The representatives of the JSC as at the Commencement Date will continue as the designated representatives for the parties, subject to clause 5.2(b).

(b) Either party may designate in writing substitutes for its representatives if one or more of such party's designated representatives are unable to be present at a meeting, provided such substitutes have the appropriate seniority and experience. From time to time each party may replace its representatives by written notice to the other party specifying the prior representative(s) and their replacement(s), provided such replacements have the appropriate seniority and experience.

5.3 Meetings

(a) Meetings of the JSC will commence at a time to be mutually agreed upon by the parties but in any event the JSC will meet at least once every Quarter during such time as Development of a Compound or Product is ongoing, and in any case more or less frequently as ACADIA and Neuren deem appropriate or as reasonably requested by either such party, by means of teleconference, video conference, or in person as deemed necessary or appropriate. Upon completion or termination of all Development activities in respect of the Compounds and Products, as mutually agreed upon by the parties, the JSC shall meet on an ad hoc or as reasonably requested by a party basis, but in any event […***…] every calendar year.

(b) ACADIA and Neuren may each, on advance notice to the other party, invite non-member employees of such party or third party contractors of either of the parties to attend meetings of the JSC, provided that such non-member employees and third party contractors cannot take part in the decision making process and shall be subject to confidentiality obligations consistent with those set forth in clause 18.

5.4 Decision making process

(a) The JSC may make decisions with respect to any subject matter that is subject to the JSC's decision-making authority and functions as set out in this clause 5.4.

(b) All decisions of the JSC will be made by unanimous vote or written consent, with ACADIA and Neuren each having collectively, among its respective members, one vote in all decisions.

(c) The JSC will use Commercially Reasonable Efforts to resolve the matters within its roles and functions or otherwise referred to it.

(d) If the JSC cannot reach consensus on a matter within […***…] Business Days after such matter has been brought to the JSC's attention, then such matter shall be first referred to the chief executive officers of the parties ("**CEOs**").

(e) The CEOs will use Commercially Reasonable Efforts to reach mutually acceptable resolutions on all such disputed matters.

(f) If the CEOs are unable to resolve such dispute within […***…] Business Days after the dispute is first referred to them, the matter will be resolved as follows:

(i) if the dispute relates to any Regulatory, Manufacturing, CMC, Development, or Commercialisation activities for any Trofinetide Compound or Trofinetide Product in the Territory, including the approval of a Proposal for a New Indication pursuant to clause 6.2, then ACADIA will have the final decision-making authority;

(ii) except for matters subject to clause 7.2(a)(ii), which will be governed by the process set forth therein, if the dispute relates to any Regulatory, Manufacturing (subject to clause 7.2(a)(ii)), CMC (subject to clause 7.2(a)(ii)), Development, or Commercialisation activities for any NNZ-2591 Compound or NNZ-2591 Product in the Territory:

(A) ACADIA will have the final decision-making authority with respect to matters that solely relate to uses of NNZ-2591 Compound or NNZ 2591 Product in the NNZ-2591 Field in the Territory; provided that ACADIA uses Commercially Reasonable Efforts to refrain from any activities that would be reasonably likely to materially adversely impact the Development and Commercialization of NNZ-2591 Compounds or NNZ-2591 Products outside of the NNZ-2591 Field; and

(B) Neuren will have the final decision-making authority with respect to all other uses of NNZ-2591 Compound or NNZ-2591 Product including uses of NNZ-2591 Compound or NNZ-2591 Product outside of the NNZ-2591 Field or that relate to uses of NNZ-2591 Compound or NNZ-2591 Product both within and without the NNZ-2591 Field,

except for matters subject to clause 7.2(a)(ii), which will be governed by the process set forth therein.

(iii) if the dispute relates to:

(A) approval of a publication or presentation pursuant to clause 18.11; or

(B) any other decision assigned to the JSC pursuant to this Agreement or as agreed upon in writing by the parties that specifically provides for dispute resolution pursuant to this clause 5.4(f)(iii), the dispute resolution procedure set out in clause 28.4 will apply.

(g) For clarity, matters relating to the conduct of Development activities relating to the Manufacture of NNZ-2591 Compound or NNZ-2591 Product or non-indication specific clinical or non-clinical studies for NNZ-2591 Compound or NNZ-2591 Product shall be governed by clause 7.2(a)(ii) and not at the JSC.

(h) Notwithstanding clause 5.4(f), neither party will exercise its right to finally resolve a dispute under this Agreement in a manner that excuses such party from any of its obligations specifically enumerated under this Agreement or in a manner that negates any consent rights or other rights specifically allocated to the other party under this Agreement. In addition, in resolving a dispute under this Agreement, each party agrees to act in good faith.

5.5 Alliance Managers

(a) Promptly following the Commencement Date, each party must designate an individual to serve as the main point of contact for each party to exchange information, facilitate communication and coordinate the parties' Development, Regulatory, Manufacturing and CMC activities relating to any Compound and Product and to provide day-to-day support to the JSC (each, an "**Alliance Manager**").

(b) Each Alliance Manager must be experienced in project management and have appropriate experience in the pharmaceutical industry.

(c) The Alliance Managers may attend all meetings between the parties, including all JSC meetings, and, if applicable, must work together to resolve any deadlock between the parties in accordance with the procedures set out in this Agreement.

(d) Each party may change its designated Alliance Manager from time to time upon written notice to the other party, provided that such replacement has the appropriate expertise and experience.

5.6 Exchange of Information

(a) Subject to clause 5.6(b), each party shall keep the other party informed as to its material progress and activities relating to the Development of any Compound and Product, including by promptly sharing data and results generated or related to any Compound and Product, inside and outside the applicable Field, and information with respect to Regulatory matters and meetings with Government Agencies (collectively "**Program Information**"), by way of updates to the JSC at its meetings or to the other party if the JSC is disbanded and as otherwise specified in this Agreement, or as reasonably requested from time to time by the other party.

(b) Notwithstanding any other provision of this Agreement (including clause 5.6(a)), but without limiting the scope of the licences granted to ACADIA pursuant to this Agreement, the Program Information required to be provided by either party (**Sharing Party**) to the other party (**Receiving Party**):

(i) in the case of ACADIA as the Sharing Party, with respect to a Compound or Product; and

(ii) in the case of Neuren as the Sharing Party, with respect to a NNZ-2591 Compound or NNZ-2591 Product,

will be limited to information:

(iii) relating to safety or toxicity data or results, including, without limitation, clinical and non-clinical safety or toxicity data, CMC information related to safety, or otherwise;

(iv) that has been publicly disclosed by the Sharing Party;

(v) that is non-indication specific or related to CMC, as provided in clause 7.2;

(vi) that is necessary or reasonably useful for any Regulatory filing, Regulatory approvals or any Regulatory communications to be made or applied for by the Receiving Party and either:

(A) relates to activities completed by the Sharing Party, including, without limitation, pre-clinical and clinical data; or

(B) is included in any Regulatory filings, Regulatory approvals or any Regulatory communications by the Sharing Party with Regulatory Authorities;

(vii) relating to any matter expressly provided elsewhere in this Agreement, including clauses 8, 9, 20 and 23, which is not expressly stated to be subject to this clause 5.6; and

neither party will be required to disclose, and the party may redact from any information provided, any information with respect to a Compound or Product:

(viii) that is incomplete or relates to any incomplete study or trial; provided, that this limit shall not apply to any information described in clause 5.6(b)(iii), and provided further, that if a study progressed but was halted, and the incomplete information could still provide interpretable conclusions, this shall not be limited by this clause; or

(ix) relating to prospective or proposed activities to be undertaken by or on behalf of the party.

(c) If a Receiving Party reasonably believes that the other party has failed to disclose information of the kind referred to in clauses 5.6(b)(iii), 5.6(b)(iv), 5.6(b)(v), 5.6(b)(vi) or 5.6(b)(vii), the Receiving Party may request the Sharing Party provide the relevant information by providing a description of the information and, in the case of clause 5.6(b)(vi) details of why the information is necessary or reasonably useful for that Regulatory filing, Regulatory approval or Regulatory documentation. The Sharing Party will consider such request in good faith and respond within […***…] Business Days of the request either by providing the information requested or providing details of the reasons for not doing so. If a dispute remains as to the provision of the information requested, it will be referred to the CEOs of the parties who will use Commercially Reasonable Efforts to reach mutually acceptable resolution on all such disputed matters within […***…] Business Days after the dispute is first resolved to them. If the CEOs are unable to resolve such dispute within […***…] Business Days after the dispute is first referred to them, the matter may be referred to arbitration for final resolution in accordance with clause 28.4.

5.7 CMC

Neuren and ACADIA acknowledge and agree that:

(a) ACADIA shall conduct and be responsible for all Manufacturing and CMC activities for any Trofinetide Compound and Trofinetide Product in the Trofinetide Field in the Territory and the day-to-day operations and decision-making for such manufacturing and CMC activities;

(b) subject to clause 7.2, Neuren and ACADIA shall coordinate with respect to the conduct of all Manufacturing and CMC activities for any NNZ-2591 Compound and NNZ-2591 Product, whether for use inside or outside the NNZ-2591 Field in the Territory; and

(c) as requested by the JSC, each party shall from time to time update the JSC with its progress in such Manufacturing and CMC activities for any Compound or Product for which it is responsible.

6 Trofinetide

6.1 Development Activities

(a) Following the Commencement Date, ACADIA shall be responsible for and conduct all development activities with respect to any Trofinetide Compound and any Trofinetide Product.

(b) Within […***…] of the Commencement Date, ACADIA will provide Neuren, through the JSC, with ACADIA's high-level non-binding development plans for the Trofinetide Product in Rett Syndrome in each of:

(i) Japan;

(ii) Australia; and

(iii) the United Kingdom, France, Italy, Germany and Spain.

ACADIA will update the plans, through the JSC, from time to time and when any material amendments occur.

(c) ACADIA will use Commercially Reasonable Efforts to achieve Marketing Authorisations for the Trofinetide Product in Rett Syndrome in those parts of the Territory referred to in clause 6.1(b).

(d) ACADIA will be responsible, at its sole cost and expense, for the day-to day operations and decision making for all development activities under the development plans or otherwise with respect to the Trofinetide Compound and Trofinetide Product in the Trofinetide Field in the Territory.

(e) ACADIA will be the sponsor and owner of all Marketing Authorisations for the Trofinetide Product in the Trofinetide Field in the Territory.

(f) ACADIA will conduct, and be responsible for all costs associated with, any clinical and non-clinical development and registration of any Trofinetide Compound or Trofinetide Product in the Trofinetide Field in the Territory, including securing the necessary Trofinetide Compound and Trofinetide Product.

6.2 New Indication

(a) ACADIA must inform and seek the approval of the JSC for any proposal to undertake development or Commercialization activities in the Territory with respect to any Trofinetide Compound or Trofinetide Product in an indication other than Rett Syndrome or Fragile X Syndrome (**Proposal**).

(b) The JSC will review the Proposal in detail and assess the potential studies and development activities in respect of the use of a Trofinetide Compound or Trofinetide Product in that new indication to identify a basis for proceeding, taking into consideration the commercial, scientific and clinical potential for such proposed development activities in relation to that new indication.

(c) If the JSC approves the Proposal, ACADIA may commence the activities in accordance with the Proposal and must keep the JSC informed of the progress of the development activities.

(d) On receipt by JSC of evidence of the commencement in the Initial Territory of clinical development, of which ACADIA is the sponsor, of the Trofinetide Compound in accordance with the Proposal, the relevant new indication, if it is not:

(i) Phelan-McDermid Syndrome, Pitt Hopkins Syndrome, Angelman Syndrome or Prader-Willi Syndrome, or

(ii) an indication for which NNZ -2591 Compound or NNZ-2591 Product has already received Marketing Authorisation in the Initial Territory,

will be classified as a **New Indication** for Trofinetide in the Initial Territory.

(e) If ACADIA ceases clinical development, of which ACADIA is the sponsor, of the Trofinetide Compound for the New Indication in the Initial Territory, ACADIA must notify the JSC and the relevant indication will cease to be a New Indication. If ACADIA has ceased that clinical development in the Initial Territory but fails to notify the JSC, Neuren may notify the JSC and unless ACADIA provides reasonable evidence to the JSC that it is still continuing that clinical development in the Initial Territory, the relevant indication will cease to be a New Indication.

7 NNZ-2591

7.1 Development Activities – NNZ-2591

(a) Following the Commencement Date, Neuren and ACADIA will work together in good faith to facilitate efficient and timely development of NNZ-2591 Compound and NNZ-2591 Product, in the case of ACADIA, in the NNZ 2591 Field and in the Territory and in the case of Neuren, outside the NNZ-2591 Field in the Territory (**Neuren's Indications**), including Manufacturing activities and non-indication specific clinical and non-clinical studies.

(b) Any meetings and exchange of information shall be conducted through the JSC or if required more frequently than the JSC meets, through the parties' respective development teams.

(c) ACADIA will be responsible, at its sole cost and expense, for the Development and Commercialization of the NNZ-2591 Compound and NNZ-2591 Product in the NNZ-2591 Field in the Territory.

(d) ACADIA will be the sponsor and owner of all Marketing Authorisations for the NNZ-2591 Product in the NNZ-2591 Field in the Territory.

(e) Without limiting clause 7.1(c), ACADIA will conduct, and be responsible for all costs associated with, any clinical and non-clinical development and registration of any NNZ-2591 Compound or NNZ-2591 Product in the NNZ-2591 Field in the Territory, including securing the necessary NNZ-2591 Compound and NNZ-2591 Product.

(f) Subject to clause 7.2, ACADIA will have the right to Manufacture, or have Manufactured, NNZ-2591 for use in the NNZ 2591 Field in the Territory.

7.2 Manufacturing and non-indication specific studies – NNZ-2591

(a) While either party is conducting Development activities in respect of NNZ-2591 Compound or NNZ-2591 Product:

(i) ACADIA's rights in relation to NNZ-2591 Compound and NNZ-2591 Product are subject to an obligation to not materially adversely impact Neuren's ongoing Development activities, including activities in respect of Manufacture and non-indication specific clinical and non-clinical studies for NNZ-2591 Compound and NNZ-2591 Product;

(ii) In the event that ACADIA desires to conduct any Development activities relating to the Manufacture of NNZ-2591 Compound or NNZ-2591 Product or non-indication specific clinical or non-clinical studies for NNZ-2591 Compound or NNZ-2591 Product, it will notify Neuren of such proposed activities and provide reasonable details of the proposed activities. In the event that Neuren is actively conducting Development of NNZ-2591 Compound or NNZ-2591 Product, Acadia must seek and obtain Neuren's consent before carrying out any development work on Manufacturing and non-indication specific clinical and non-clinical studies of NNZ-2591 Compound or NNZ-2591 Product. Neuren's consent may only be withheld in the event that Neuren has a reasonable basis to believe that such proposed Development activities of Acadia would have a material adverse impact on Neuren's ongoing Development (an "**Adverse Impact**"). In the event Neuren withholds consent, it will promptly provide a reasonably detailed explanation to ACADIA as to the basis for its belief that ACADIA's proposed work would have an Adverse Impact.

(iii) Prior to filing for any patent in respect of the Manufacturing of NNZ-2591, ACADIA must notify Neuren and provide to Neuren a copy of the proposed application at least […***…] days prior to the application being

filed. If Neuren reasonably believes that the patent application will have an Adverse Impact, Neuren may object to the proposed patent application by notice to ACADIA. If Neuren objects to the proposed patent application prior to the end of the […***…] day period, it will promptly provide a reasonably detailed explanation as to how it believes Acadia's proposed application would have an Adverse Impact on Neuren's Development activities, and the parties will meet to discuss the proposed patent application and effect on Neuren's Development activities. If the parties cannot agree a way in which to overcome Neuren's reasonable concerns (such as an amendment to the proposed application or a deferral in lodging the application), the matter will be dealt with by the JSC under clause 5.4 and ACADIA will not file the proposed patent application until the dispute is resolved.

(b) If, at any time after the Commencement Date, ACADIA elects to use Neuren as a supplier, ACADIA may present a Development plan to the JSC in respect of NNZ-2591, including the quantities of NNZ-2591 Compound and NNZ-2591 Product required for that Development plan and the desired timing for receipt of those quantities. Within […***…] days after a request by ACADIA, Neuren will provide ACADIA with a quote to supply the NNZ-2591 Compound or NNZ-2591 Product to meet the requirement of the Development plan. The transfer price for all NNZ-2591 Compound or NNZ-2591 Product supplied by Neuren to ACADIA will be equal to Neuren's Manufacturing Cost. If ACADIA accepts the quote, the quote will become irrevocable and ACADIA will pay to Neuren the full amount of the quote, which will be non-refundable. Promptly after receiving ACADIA's payment of the full amount of the quote, Neuren will place an order with its suppliers for the quantities of NNZ-2591 Compound or NNZ-2591 Product as requested by ACADIA. If the requested quantity or timing cannot be achieved by Neuren's suppliers, the parties will discuss in good faith the optimum alternative.

(c) After ACADIA's IND application (or its foreign equivalent) for NNZ-2591 in Rett Syndrome or Fragile X Syndrome has been accepted by the applicable Regulatory Authority (including by expiration of any applicable waiting period), the parties will discuss whether ACADIA will use the same manufacturer as Neuren then uses for the Manufacture of NNZ-2591 Compound or NNZ-2591 Product.

(d) If ACADIA elects to use the same manufacturer, the allocation of supply will prioritise Neuren's Development and Commercialization of NNZ-2591 Compound or NNZ-2591 Product outside the NNZ-2591 Field.

(e) If ACADIA elects to use a different manufacturer to Neuren for the Manufacture of NNZ-2591 Compound or NNZ-2591 Product:

(i) ACADIA may request that Neuren transfers all Know-how, Methodology, materials and other Intellectual Property Rights to ACADIA necessary or reasonably useful to enable ACADIA to commence the Manufacture of NNZ-2591 Compound or NNZ-2591 Product. Neuren will complete the technology transfer promptly following such request. Any in-progress Improvements will only be transferred once they have been completed. ACADIA will reimburse to Neuren all reasonable costs and expenses incurred by or on behalf of Neuren in completing the technology transfer;

(ii) Acadia will have the right and licence to have Manufactured NNZ-2591 Compound or NNZ-2591 Product prior to such technology transfer as needed to support Development activities for its indications, subject to conditions described herein including Neuren's consent pursuant to clause 7.2(a)(ii); and

(iii) Neuren may and has the right to, but is not required to, use the same manufacturer to Manufacture NNZ-2591 Compound or NNZ-2591 Product and if it does so, the allocation of supply from that manufacturer

will prioritise ACADIA's Development and Commercialization of NNZ-2591 Compound or NNZ-2591 Product in the NNZ-2591 Field.

(f) In addition to the JSC meetings relating to NNZ-2591 Compound or NNZ-2591 Product, at least once per Quarter, the parties agree, subject to clause 5.6, to share and discuss CMC related matters in connection with NNZ-2591 Compound or NNZ-2591 Product inside and outside of the NNZ-2591 Field.

(g) If ACADIA has developed a different Manufacturing process for NNZ-2591 Compound or NNZ-2591 Product, Neuren may:

(i) request that ACADIA transfer all Know-how, Methodology, materials and other Intellectual Property Rights to Neuren necessary or reasonably useful to enable Neuren to commence the Manufacture of NNZ-2591 Compound or NNZ-2591 Product using that different process. ACADIA will complete the technology transfer promptly following such request. Neuren will reimburse to ACADIA all reasonable costs and expenses incurred by or on behalf of ACADIA in completing the technology transfer; or

(ii) source NNZ-2591 Compound or NNZ-2591 Product from ACADIA at ACADIA's Manufacturing Cost.

(h) In relation to the Manufacturing of NNZ-2591 Compound and NNZ-2591 Product:

(i) the parties will discuss in good faith alternatives for the optimum specifications, including specifications relating to impurities and excipients;

(ii) ACADIA will use Commercially Reasonable Efforts to Manufacture NNZ-2591 Compound API to the same specifications as Neuren and not deviate materially from those specifications without Neuren's prior consent, not to be unreasonably withheld; and

(iii) each party will comply with all applicable laws, including applicable cGMP requirements.

(i) Upon the other party's reasonable request during the Term, each party shall provide reasonable cooperation to the other party with respect to the conduct of the Manufacturing activities in respect of NNZ-2591 Compound or NNZ-2591 Product, including:

(i) the transfer of any additional Know-how, Methodology, materials and other Intellectual Property Rights that are Controlled by such party to the other party to the extent necessary or reasonably useful to enable such other party to practice the licences and rights granted to such other party under this Agreement; and

(ii) providing the other party with technical assistance through personnel familiar with the NNZ-2591 Compound or NNZ-2591 Product to enable the Development and Commercialization of the NNZ-2591 Compound and NNZ-2591 Product, including any CMC and Methodology expertise in connection therewith, at the requesting party's cost.

The parties will agree in good faith and undertake the actions reasonably required to ensure that those ongoing Development or CMC activities may continue after the Commencement Date without interruption.

8 FDA and other Approvals

8.1 Regulatory Approvals

(a) ACADIA will be responsible for all costs associated with any clinical and non-clinical development of any Compound or Product in the applicable Field in

the Territory, including any Phase II Clinical Studies, Phase III Clinical Studies and post-marketing studies that are required by the Regulatory Authority as a condition of granting the Marketing Authorisation or that are otherwise required by ACADIA. ACADIA will be responsible for conducting, at its own cost, any additional studies required to gain approval outside of the United States but in the Territory as determined solely at ACADIA's discretion.

(b) ACADIA will be responsible for obtaining all necessary approvals to Commercialize any Product in the applicable Field from the Regulatory Authority. With respect to NNZ-2591 Product:

(i) ACADIA will procure that, unless the urgency of the matter reasonably precludes it from providing Neuren with an opportunity to review and/or comment on responses and submissions made or to be made to a Regulatory Authority, ACADIA will not respond to a Regulatory Authority or otherwise make any submissions to a Regulatory Authority without giving Neuren a reasonable opportunity (not exceeding […***…] Business Days) to review and comment on the response and/or submission; and

(ii) Neuren will procure that, ACADIA will be provided copies or parts of any such response and/or submission to the extent they relate solely to the NNZ-2591 Field or are non-indication specific or relate to CMC.

For the avoidance of doubt, ACADIA will have final decision-making authority with respect to such submissions in the NNZ-2591 Field and Neuren will have final decision-making authority with respect to such submissions outside of the NNZ-2591 Field.

(c) Neuren representatives shall be entitled to attend all meetings with the Regulatory Authority with respect to obtaining necessary approvals from the Regulatory Authority to Commercialize any NNZ-2591 Product in the NNZ-2591 Field. The JSC will endorse attendee number and type based on meeting objective needs.

(d) All Third Party charges for obtaining any necessary Marketing Authorisation for any NNZ-2591 Product in the NNZ-2591 Field will be paid by ACADIA. All Third Party charges for obtaining any necessary Marketing Authorisation for any NNZ-2591 Product outside the NNZ-2591 Field will be paid by Neuren.

(e) For countries in the Territory:

(i) ACADIA will be responsible for the preparation and filing of, all required applications for Marketing Authorisations for any NNZ-2591 Product in the NNZ-2591 Field; and

(ii) Neuren will be responsible for the preparation and filing of, all required applications for Marketing Authorisations for any NNZ-2591 Product outside the NNZ-2591 Field.

(f) ACADIA will be the holder and own all right, title and interest in and to all the Marketing Authorisations for any NNZ-2591 Product in the NNZ-2591 Field, subject to clause 23.3(a)(i). Neuren will be the holder and own all right, title and interest in and to all the Marketing Authorisations for any NNZ-2591 Product outside the NNZ-2591 Field.

8.2 Rights to Data

Each party grants to the other party a royalty free, fully paid-up, irrevocable and non-exclusive licence to the data generated from the Development of any Compound and any Product for Rett Syndrome, Fragile X Syndrome or any other application to the extent required by the other party for the Development or commercial exploitation (including sub-licensing) of any Compound or Product by ACADIA in the applicable Field in the applicable Territory or by Neuren outside the applicable Field or outside the applicable Territory; provided that with respect to such rights granted to Neuren with respect to

Trofinetide Compounds or Trofinetide Products, such rights shall only be effective upon termination of this Agreement in a given territory with respect to a given Trofinetide Compound or Trofinetide Product, and upon such termination, for use of such Trofinetide Compound or Trofinetide Product in or for use in such terminated territory. In the case of the licence granted by Neuren to ACADIA, the licence will continue for the Term and in the case of the licence granted by ACADIA to Neuren, the licence will be perpetual with respect to the Compound and Product outside the applicable Field or outside the Territory.

9 Regulatory Compliance

(a) ACADIA must not market, distribute or sell any Product in any part of the Territory unless ACADIA has a Marketing Authorisation (if required by a Government Agency) for that Product in the applicable Field in that part of the Territory.

(b) ACADIA will be responsible for keeping itself informed about and complying with any relevant regulations and laws or agreements applying to the Manufacturing, labelling, storage, distribution, marketing, promotion and sale of any Compound or any Product in all parts of the applicable Field and Territory.

(c) ACADIA agrees, at its sole cost and expense, to use Commercially Reasonable Efforts to maintain all Marketing Authorisations (following receipt) throughout the Term in the Initial Territory and each of the countries set out in clause 6.1(b), including all supplemental applications, annual reports, variations or renewals thereof.

(d) ACADIA shall, at its sole cost and expense, be responsible for all post-Marketing Authorisation approval reporting of Adverse Drug Events (ADEs) and post-marketing Product surveillance in the applicable Field in the Territory, if and as required by Government Agencies in the Territory. The parties acknowledge that Neuren has provided ACADIA with a listing of all safety reports obtained by Neuren prior to the Commencement Date in respect of the Trofinetide Compound from clinical development and serious adverse event (SAE) reports including narrative (e.g. CIOMS II with narrative) from clinical development as well as source documentation and proof of where each case was submitted.

(e) The parties confirm that the global pharmacovigilance agreement previously entered into by them, setting forth details with respect to the management of safety information including adverse events reports related to the Development and the Commercialization of the Trofinetide Products as well as a Safety Governance Structure and provisions ensuring Neuren has full rights of access to all such information and data, will continue in full force and effect after the Commencement Date.

(f) ACADIA shall continue to maintain a global safety database for the Trofinetide Products.

(g) The parties will enter into a global pharmacovigilance agreement setting forth details with respect to the management of safety information including adverse events reports related to the Development and the Commercialization of the NNZ-2591 Products as well as a Safety Governance Structure and provisions ensuring that each party has full rights of access to all such information and data.

(h) ACADIA will have the right to maintain the global PV database for NNZ-2591 Products in the NNZ-2591 Field and Neuren will have the right to maintain the global PV database with respect to all other uses of NNZ-2591 Products.

(i) Neuren hereby grants to ACADIA, solely for the purposes set out in this Agreement, a right of reference or use to that part of any and all Regulatory documentation Controlled by Neuren or any of its Affiliates relating to any Compound or Product in the applicable Field that is existing as of the

Commencement Date or generated from any clinical trial commenced by Neuren or any of its Affiliates after the Commencement Date, and Neuren agrees to sign, and cause its Affiliates to sign, any instruments reasonably requested by ACADIA in order to effect such grant.

(j) ACADIA hereby grants to Neuren, solely for the purposes set out in this Agreement, a right of reference or use to that part of any and all Regulatory documentation Controlled by ACADIA or any of its Affiliates relating to any Compound or Product that is existing as of the Commencement Date or generated from any clinical trial commenced by ACADIA or any of its Affiliates after the Commencement Date, and ACADIA agrees to sign, and cause its Affiliates to sign, any instruments reasonably requested by Neuren in order to effect such grant; provided that:

(i) with respect to NNZ-2591 Compounds and NNZ-2591 Products, such right shall only be for use outside of the NNZ-2591 Field, or following termination of this Agreement in a given territory with respect to a given NNZ-2591 Compound or NNZ-2591 Product, for use of such NNZ-2591 Compound or NNZ-2591 Product in such terminated territory; and

(ii) with respect to Trofinetide Compounds or Trofinetide Products, such right shall only be effective upon termination of this Agreement in a given territory with respect to a given Trofinetide Compound or Trofinetide Product, and upon such termination, for use of such Trofinetide Compound or Trofinetide Product in or for use in such terminated territory.

10 Commercialization

10.1 Commercial launch

ACADIA will be responsible for planning, forecasting and Manufacturing or having Manufactured all quantities of any Product required for launch of that Product in the applicable Field in the Territory.

10.2 Commercialization in the Field in the Territory

During the Term, ACADIA shall be solely responsible for Commercializing any Product in the Territory for use in the applicable Field, which Commercialization shall be in accordance with this Agreement. ACADIA shall be responsible for 100% of the expenses (including Pre-Marketing and other Commercialization expenses) incurred by or on behalf of ACADIA (including any expenses incurred by Neuren at the written request of ACADIA) in connection with the Commercialization of any Product in the Territory for use in the applicable Field.

10.3 Commercialization of Trofinetide Product

Without limiting clause 10.2, ACADIA shall use its Commercially Reasonable Efforts to launch and Commercialize the Trofinetide Product for use in Rett Syndrome in each of the countries set out in clause 6.1(b) after the Marketing Authorisation (if applicable) and all other applicable regulatory approvals for that Trofinetide Product have been obtained in that country (including pricing and reimbursement approvals). ACADIA shall book all sales of Trofinetide Products on a worldwide basis.

10.4 Actions

In developing strategies, making decisions and exercising its rights under this Agreement (including acting through its representatives on the JSC and its Alliance Managers), each party shall act in good faith and use its Commercially Reasonable Efforts to further the interests of the JV in accordance with this Agreement. For clarity, ACADIA shall be responsible for the day-to-day operations and decision-making for all Commercialization

activities with respect to any Compound or any Product in the applicable Field in the Territory.

10.5 Commercialization Obligations

(a) Without limiting any other provision of this Agreement ACADIA (or its Affiliate or Sub-Licensee, as applicable) shall be solely responsible for:

(i) receiving, accepting and filling orders for any Product in the applicable Field in the Territory;

(ii) handling all returns of any Product in the applicable Field in the Territory;

(iii) controlling invoicing, order processing and collection of accounts receivable for the sales of any Product in the applicable Field in the Territory; and

(iv) distributing and managing inventory of any Product in the applicable Field in the Territory.

(b) ACADIA shall use Commercially Reasonable Efforts to carry out the Commercialization activities for the Products:

(i) as set forth in clause 10.3 with respect to Trofinetide Product, and

(ii) with respect to NNZ-2591 in the NNZ-2591 Field, in the Initial Territory and each of the countries set out in clause 6.1(b) following approval of the Marketing Authorisation and receipt of any other approvals of Governmental Agencies required to conduct such Commercialization activities in the applicable country of the Territory. ACADIA shall book all sales of NNZ-2591 Products in the NNZ-2591 Field on a worldwide basis, and Neuren shall book all sales of NNZ-2591 Products outside of the NNZ-2591 Field in the Territory on a worldwide basis (for clarity the booking of sales does not limit the obligation to pay Gross Profits to the other party as described in clause 11.1, as applicable).

10.6 Marketing and sale

ACADIA will, and will cause its officers, agents and contractors to, conduct all details with respect to each Product and the performance of ACADIA's Commercialization activities under this Agreement in the applicable Field and in the Territory in adherence with the applicable Marketing Authorisation, the Product package inserts, labelling and packaging, and any professional requirements, including those relating to promotion of pharmaceutical products, consumer protection, fraud and abuse and false claims.

10.7 Promotional Materials

(a) ACADIA will create and develop Promotional Materials for the Products in the applicable Field in the Territory in accordance with the Marketing Authorisations and applicable laws. ACADIA shall own all right, title and interest in and to any Promotional Materials created by ACADIA under this Agreement relating to any Product in the applicable Field in the Territory and any website (including without limitation Daybue.com) relating to the Product.

(b) With respect to any NNZ-2591 Product, ACADIA and Neuren will disclose to each other any and all Promotional Materials created by the respective parties, and co-operate with each other in relation to Promotional Materials to promote a reasonable level of consistency with respect to the Products; provided that ACADIA retains the right to modify any Promotional Materials in the NNZ-2591 Field in the Territory, at its sole discretion and Neuren retains the right to modify any Promotional Materials outside the NNZ-2591 Field, at its sole discretion.

(c) Neither party shall use any of the other party's Promotional Materials without the prior written consent of the other party, not to be unreasonably withheld.

11 JV Obligations of loyalty and exclusivity

11.1 Commercialization through JV

(a) The parties acknowledge and agree that it is their intention that all their activities:

(i) for the Commercialization of the Trofinetide Compound and Trofinetide Product in the Trofinetide Field in the Territory; and

(ii) for the development or Commercialization of the NNZ-2591 Compound and NNZ-2591 Product in the NNZ-2591 Field in the Territory,

will be conducted through the JV.

(b) In order to protect the parties' respective investment and resultant goodwill in the JV, Neuren and its Affiliates will not develop or Commercialize any other compound or product (including NNZ-2591 Compound or NNZ-2591 Product) other than through the JV on terms to be agreed between the parties on a product by product basis for the periods, parts of the Territory and indications set out in the following table:

Period	**Part of Territory**	**Indication**
During any period in which the Exclusivity Period for a Trofinetide Product for use in Rett Syndrome continues in any part of the Territory	All of the Territory	Rett Syndrome
During any period in which the Exclusivity Period for a Trofinetide Product for use in Fragile X continues in any part of the Territory	All of the Territory	Fragile X Syndrome
During any period in which the Exclusivity Period for a Trofinetide Product for use in the New Indication continues	Anywhere in the Initial Territory	New Indication

(c) If Neuren has commenced clinical development in the Initial Territory of a product for an indication and that indication subsequently becomes a New Indication in the Initial Territory, Neuren must halt clinical development for the New Indication in the Initial Territory, and may only reinitiate clinical development for that indication in the Initial Territory on the first to occur of:

(i) Neuren and ACADIA agreeing on the terms on which that product and New Indication can be included in the JV; and

(ii) the indication ceases to be classified as a New Indication pursuant to clause 6.2(e).

This clause 11.1(c) will not prevent, and Neuren will be entitled at all times, to develop and Commercialize the product for the New Indication outside the Initial Territory.

(d) For the avoidance of doubt, if Neuren wishes to pursue, in part of the Territory, a product for an indication that it is prevented from developing or Commercializing

in accordance with clause 11.1(b) and ACADIA does not wish to pursue that product for that indication in that part of the Territory, or the parties do not agree the terms on which that product and indication can be included in the JV, Neuren must not pursue that product for that indication in that part of the Territory during the period in which it is prevented from doing so under clause 11.1(b).

(e) For the avoidance of doubt, the parties acknowledge and agree, that:

(i) nothing in this Agreement requires Neuren to develop or Commercialize any other compound or product (including NNZ-2591) for use in the Field;

(ii) notwithstanding any other provision of this Agreement, Neuren retains the right to develop or Commercialize any compound or product (including NNZ-2591) anywhere in the Territory for the treatment of Phelan-McDermid Syndrome, Pitt Hopkins Syndrome, Angelman Syndrome and Prader-Willi Syndrome.

(f) Neuren and ACADIA will work together in good faith to minimize, to the extent possible, the potential for off-label sales of NNZ-2591 Product Commercialized by ACADIA in Neuren's Indications and off-label sales of NNZ-2591 Product Commercialized by Neuren in the NNZ-2591 Field in the Territory. The parties will not directly or indirectly promote off-label use of NNZ-2591 Product and will use Commercially Reasonable Efforts to prevent any off-label use of NNZ-2591 Product.

(g) If Neuren generates any Commercial Sales of an NNZ-2591 Product in:

(i) the NNZ-2591 Field inside the Territory; or

(ii) the Initial Territory in a New Indication,

Neuren will pay to ACADIA the Gross Profits generated from those sales of that Product.

(h) If Acadia generates any Commercial Sales of a NNZ-2591 Product outside the NNZ-2591 Field or outside the Territory, ACADIA will pay to Neuren the Gross Profits generated from those sales of that Product.

(i) For the purposes of clauses 11.1(g) and 11.1(h):

(i) **Commercial Sale** means the sale or transfer of that Product in a region or other regulatory jurisdiction in the Territory by or on behalf of a party or its sub-licensees to a Third Party, other than for evaluation, research or clinical trial purposes or any not-for-profit or compassionate uses, in exchange for cash or some equivalent to which value can be assigned; and

(ii) **Gross Profits** means Net Revenue from the sales of the relevant Product less the Manufacturing Costs of the relevant Products sold.

(j) The parties acknowledge that the payments referred to in clause 11.1(g) and 11.1(h) do not limit the parties' rights to seek equitable remedies for breach of any applicable obligations under this Agreement.

11.2 Limit on party's rights to sell, supply or export Product

(a) ACADIA and its Affiliates will not, and must procure that Sub-Licensees do not, use, develop, Commercialize, sell, supply or export any NNZ-2591 Compound or NNZ-2591 Product, directly or indirectly, for use, outside the NNZ-2591 Field or in any terminated territory with respect to such NNZ-2591 Compound or NNZ-2591 Product.

(b) ACADIA and its Affiliates will not, and must procure that Sub-Licensees do not, use, develop, Commercialize, sell, supply or export any Trofinetide Compound or Trofinetide Product, directly or indirectly, for use in any terminated territory with respect to such Trofinetide Compound or Trofinetide Product.

(c) Subject to clause 4.5, Neuren and its Affiliates will not, and must procure that any licensees or sublicensees do not, use, develop, Commercialize, sell, supply or export any NNZ-2591 Compound or NNZ-2591 Product, directly or indirectly, for use, within the NNZ-2591 Field in the Territory.

(d) Subject to clause 4.5, Neuren and its Affiliates will not, and must procure that any licensees or sublicensees do not, use, develop, Commercialize, sell, supply or export any Trofinetide Compound or Trofinetide Product, directly or indirectly, for use, in the Territory.

Without limiting the foregoing, each party undertakes, and must procure that its Sub-Licensees, licensees or sublicensees (as applicable) undertake, except as expressly permitted by this Agreement:

(i) not to sell, supply or export any Compound or Product directly or indirectly for use in contravention of the foregoing covenants; and

(ii) in the case of ACADIA, not to:

(A) engage in promotional activities for any NNZ-2591 Compound or NNZ-2591 Product directed outside the NNZ-2591 Field or in or to any terminated territory with respect to such NNZ-2591 Compound or NNZ-2591 Product;

(B) engage in promotional activities for any Trofinetide Compound or Trofinetide Product directed outside the Trofinetide Field or in or to any terminated territory with respect to such Trofinetide Compound or Trofinetide Product;

(C) sell or fill any orders for any NNZ-2591 Compound or NNZ-2591 Product to customers directed outside the NNZ-2591 Field or in any terminated territory with respect to such NNZ-2591 Compound or NNZ-2591 Product; or

(D) sell or fill any orders for any Trofinetide Compound or Trofinetide Product to customers directed outside the Trofinetide Field or in any terminated territory with respect to such Trofinetide Compound or Trofinetide Product; and

(iii) in the case of Neuren, not to:

(A) engage in promotional activities for any NNZ-2591 Compound or NNZ-2591 Product directed inside the NNZ-2591 Field in or to the Territory;

(B) engage in promotional activities for any Trofinetide Compound or Trofinetide Product directed in or to the Territory;

(C) sell or fill any orders for any NNZ-2591 Compound or NNZ-2591 Product to customers directed inside the NNZ-2591 Field in the Territory; or

(D) sell or fill any orders for any Trofinetide Compound or Trofinetide Product to customers directed in the Territory.

12 Warranties by ACADIA

12.1 ACADIA representations

ACADIA represents, warrants and covenants to Neuren that:

(a) it is duly organized and validly existing under the laws of its jurisdiction of incorporation or formation, and has full corporate or other power and authority to enter into this Agreement and to carry out the provisions hereof,

(b) it is duly authorized to execute and deliver this Agreement and to perform its obligations hereunder, and the person or persons executing this Agreement on its behalf has been duly authorized to do so by all requisite corporate action,

(c) this Agreement is legally binding upon it, enforceable in accordance with its terms, and the execution, delivery and performance of this Agreement by ACADIA does not conflict with, or breach any agreement to which ACADIA is a party, or any of ACADIA's articles of incorporation or bylaws;

(d) it has:

(i) or will have, access to suitably qualified technical staff to carry out the manufacture of each Product in the Territory to be performed by or on behalf of ACADIA, subject to Neuren's compliance with the terms of this Agreement or any other written agreement between the parties; and

(ii) access to the necessary staff and facilities to carry out the marketing, promotion, distribution and sale of each Product in the Territory to be performed by or on behalf of ACADIA;

(e) it will exercise Commercially Reasonable Efforts in connection with the Manufacture, distribution, marketing, promotion and sale of each Product in the applicable Field in the Territory;

(f) in the Manufacture, distribution, marketing, promotion and sale of each Product, it will comply in all material respects with the provisions of all acts, regulations, by-laws, orders, directions, notices and instructions made or given by any Governmental Agency or other Regulatory Authority acting under any act, regulation or by-law in the Territory and with the applicable Marketing Authorisation;

(g) it will comply fully with all relevant safety standards in connection with the storage, transportation and distribution of each Product in the Territory; and

(h) it is not debarred or disqualified under the U.S. Federal Food, Drug and Cosmetic Act, as may be amended, or comparable laws in any country or jurisdiction other than the U.S., and it does not, and will not during the Term, employ or use the services of any person who is debarred or disqualified, in connection with activities relating to any Compound or Product, and in the event that either party becomes aware of the debarment or disqualification or threatened debarment or disqualification of any person providing services to such party, including the party itself or its Affiliates or licensees or sublicensees, which directly or indirectly relate to activities contemplated by this Agreement, such party shall immediately notify the other party in writing and such party shall cease employing, contracting with, or retaining any such person to perform any such services.

12.2 Exclusion

Except as expressly set forth in this Agreement, ACADIA expressly disclaims any and all warranties of any kind, express or implied, including the warranties of design, merchantability, fitness for a particular purpose, noninfringement of the intellectual property rights of third parties, or arising from a course of dealing, usage or trade practices, in all cases with respect thereto. Without limiting the generality of the foregoing, ACADIA does not represent or warrant:

(a) that the activities contemplated in any Development plan or Commercialization plan shall achieve any of the objectives contemplated therein; or

(b) the success of any study or test conducted by ACADIA pursuant to this Agreement.

13 Warranties by Neuren

13.1 Neuren representations

Neuren represents, warrants and covenants to ACADIA that:

(a) it is duly organized and validly existing under the laws of its jurisdiction of incorporation or formation, and has full corporate or other power and authority to enter into this Agreement and to carry out the provisions hereof,

(b) it is duly authorized to execute and deliver this Agreement and to perform its obligations hereunder, and the person or persons executing this Agreement on its behalf has been duly authorized to do so by all requisite corporate action,

(c) this Agreement is legally binding upon it, enforceable in accordance with its terms, and the execution, delivery and performance of this Agreement by Neuren does not conflict with, or breach any agreement to which Neuren is a party, or any of Neuren's articles of incorporation or bylaws;

(d) Neuren has the right to grant to ACADIA the licences and rights granted to ACADIA by Neuren under this Agreement;

(e) it has not as of the Commencement Date, and will not during the Term, grant any right to any Third Party under the Neuren IP or Methodology that would conflict with the rights granted to ACADIA hereunder;

(f) it has or will have, access to suitably qualified technical staff to carry out the activities to be performed by or on behalf of Neuren as contemplated by this Agreement, subject to ACADIA's compliance with the terms of this Agreement or any other written agreement between the parties;

(g) it will exercise Commercially Reasonable Efforts in connection with the activities to be conducted by or on behalf of Neuren with respect to Products pursuant to this Agreement;

(h) in connection with the activities to be conducted by or on behalf of Neuren with respect to Products pursuant to this Agreement, it will comply in all material respects with the provisions of all acts, regulations, by-laws, orders, directions, notices and instructions made or given by any Governmental Agency or other Regulatory Authority acting under any act, regulation or by-law in the Territory and with the applicable Marketing Authorisation;

(i) Neuren has not received notice from any Third Party alleging, and is not aware of any facts or circumstances that would result in, any infringement of the rights of any Third Party in the Development, Manufacture, use or Commercialization of any Compound or Product or practice of the Methodology as contemplated by this Agreement, and, to the best of Neuren's knowledge, use of the Neuren IP in accordance with the terms of this Agreement will not infringe on the rights of any Third Party (including any Third Party's Intellectual Property Rights);

(j) as of the Commencement Date, it has received no notice and is not aware of any claim or demand or of any threatened or pending litigation regarding the Neuren IP or the Methodology, including any action or litigation alleging that the practice or use of any Neuren IP or the Methodology would infringe any patent rights or other Intellectual Property Right of any Third Party;

(k) no Third Party has any rights to or interest in the Neuren IP in the Territory in respect of the applicable Field;

(l) Neuren has not given any notice to any Third Party asserting infringement by such Third Party of any of the Neuren IP and, to Neuren's knowledge, there is no unauthorized use, infringement or misappropriation of any of the Neuren IP;

(m) the Neuren IP is valid, subsisting and in full force and effect and, to Neuren's knowledge, is enforceable and Neuren has not misappropriated any rights of Third Parties with respect to the Neuren IP;

(n) Neuren or its Affiliates own all right, title and interest in and to the Neuren IP in the Field free and clear of all encumbrances, security interests, options and licences; and

(o) it is not debarred or disqualified under the U.S. Federal Food, Drug and Cosmetic Act, as may be amended, or comparable laws in any country or jurisdiction other than the U.S., and it does not, and will not during the Term, employ or use the services of any person who is debarred or disqualified, in connection with activities relating to any Compound or Product, and in the event that either party becomes aware of the debarment or disqualification or threatened debarment or disqualification of any person providing services to such party, including the party itself or its Affiliates or licensees or sublicensees, which directly or indirectly relate to activities contemplated by this Agreement, such party shall immediately notify the other party in writing and such party shall cease employing, contracting with, or retaining any such person to perform any such services.

13.2 Exclusion

Except as expressly set forth in this Agreement, Neuren expressly disclaims any and all warranties of any kind, express or implied, including the warranties of design, merchantability, fitness for a particular purpose, noninfringement of the intellectual property rights of third parties or arising from a course of dealing, usage or trade practices, in all cases with respect thereto. Without limiting the generality of the foregoing, Neuren does not represent or warrant:

(a) that the activities contemplated in any Development plan or Commercialization plan shall achieve any of the objectives contemplated therein; or

(b) the success of any study or test conducted by Neuren pursuant to this Agreement.

14 Sub-Licences

14.1 Appointment

(a) Subject to this clause 14, ACADIA may appoint Sub-Licensees.

(b) ACADIA must notify Neuren of the appointment and identity of each Sub-Licensee and must enter into a binding agreement with each Sub-Licensee (as may be amended, a "**Sub-Licence Agreement**").

(c) If requested by Neuren, ACADIA must promptly share any Sub-Licence Agreement with Neuren; provided that ACADIA may redact competitively sensitive information that is not necessary for Neuren to determine compliance with this Agreement or the amount of payments due to Neuren hereunder.

(d) The Sub-Licence Agreement and the terms and conditions of appointment of any Sub-Licensee must be consistent with the terms of this Agreement.

(e) Without the prior written consent of Neuren, which consent shall not be unreasonably withheld, ACADIA must not, prior to the commencement by ACADIA of a Phase II Clinical Study anywhere in the world with respect to NNZ-2591 Compound or NNZ-2591 Product in the NNZ-2591 Field, appoint a Sub-Licensee to acquire, assume or otherwise take on all or substantially all of ACADIA's rights or obligations under this Agreement with respect to NNZ-2591 Compound or NNZ-2591 Product or in circumstances which would, in effect, constitute an assignment, transfer or other disposal by ACADIA of, all or substantially all of ACADIA's rights or obligations under this Agreement with

respect to NNZ-2591 Compound or NNZ-2591 Product if that assignment, transfer or other disposal would not be permitted under clause 29.5.

14.2 Compliance with sub-licence

ACADIA will cause any Sub-Licensee to comply with the terms and conditions of its Sub-Licence Agreement, including compliance with any of the terms and conditions required for ACADIA to comply with this Agreement.

14.3 Responsibility of ACADIA

The performance of any obligation by a Sub-Licensee of ACADIA does not relieve ACADIA of responsibility for any obligation of ACADIA under this Agreement.

14.4 Sublicence to Affiliates

ACADIA may also grant sublicences under the Neuren IP to any of its Affiliates, will cause any Affiliate to comply with any of the terms and conditions required for ACADIA to comply with this Agreement, and will remain responsible for performance by any Affiliate of ACADIA of any obligation of ACADIA under this Agreement. Any such sublicence will terminate immediately upon the relevant party ceasing to be an Affiliate of ACADIA.

14.5 Sub-Licensee royalties

ACADIA will cause all Sub-Licensees to have the same obligations to keep accounts and records as ACADIA has under clause 15.3(b).

14.6 Sublicences by Neuren

The provisions of clauses 14.1 through 14.4 shall apply with respect to Neuren and any sublicence granted by it under any Intellectual Property Rights of ACADIA licensed to Neuren pursuant to this Agreement.

15 Fees and Royalties

15.1 Payment of the Fees

(a) ACADIA shall pay or procure its nominated Affiliate to pay (as applicable) Neuren:

(i) the Upfront Fee in accordance with the payment terms set out in clause 1 of the Fee Schedule;

(ii) each Development Milestone Fee in accordance with the payment terms set out in clause 2 of the Fee Schedule;

(iii) each Sales Milestone Fee in accordance with the payment terms set out in clause 3 of the Fee Schedule; and

(iv) each Sub-Licensee Fee in accordance with the payment terms set out in clause 5 of the Fee Schedule.

(b) For the avoidance of doubt, none of the Fees are refundable under any circumstances; provided, however, that ACADIA retains the right to claim any excess payments as damages in any court or arbitration proceeding.

(c) Upon the achievement of each Development Milestone Fee and Sales Milestone Fee, Neuren shall invoice ACADIA, and ACADIA shall pay such Fee within […***…] days of delivery of the invoice.

15.2 Priority review voucher

(a) If ACADIA receives or has already received a Rare Paediatric Disease Priority Review Voucher from the FDA on approval of a NDA for any Product for any indication, ACADIA will pay to Neuren one third of the proceeds after applicable

taxes from the sale of such voucher or the value if not sold but used by ACADIA in connection with filing an NDA with the FDA for a product other than a Product within […***…] days of delivery of the invoice with respect to such payment.

(b) For the purposes of this clause 15.2, if:

(i) a Priority Review Voucher is sold to an independent Third Party, the sale value will be the amount paid or to be paid by that Third Party or, if any part of the consideration for the sale is not in cash, the market value of such non-cash consideration less applicable taxes on such sale or transfer (but in any event, excluding tax on the income of ACADIA resulting from such sale); and

(ii) a Priority Review Voucher is not sold at all or is not sold to an independent Third Party and ACADIA submits it to the FDA with the corresponding NDA for any product other than a Product, the sale value will be the average price paid by purchasers of Rare Paediatric Disease Priority Review Vouchers in the last 3 publicly announced sales of such vouchers by any holders to independent third parties immediately preceding the issuance of the priority review voucher to ACADIA.

15.3 Royalties

(a) Royalties are payable by ACADIA to Neuren within […***…] days after the last day of each Quarter for all Net Revenues during such Quarter, in accordance with the royalty calculations set forth in clause 4 of the Fee Schedule.

(b) ACADIA (including its Affiliates) and Sub-Licensees shall keep complete and accurate books and records which may be necessary to ascertain properly and to verify the payments owed hereunder and retain those books and records for at least […***…] years. ACADIA shall furnish Neuren with quarterly reports on sales of the Product within […***…] days after the end of each Quarter; provided that such report shall be due […***…] days after the end of the fourth Quarter of each calendar year, together with the payment of Royalties for such Quarter. Each quarterly report must include:

(i) the gross amounts invoiced for each Product by ACADIA (including its Affiliates) and Sub-Licensees in each country and Region in the Territory;

(ii) each category of the allowable deductions (as set forth in the definition of Net Revenue) that result in the Net Revenue for those countries and Regions;

(iii) a calculation of the Royalties due on such sales;

(iv) the number of units and price of Products sold; and

(v) the application of any reductions, in accordance with clauses 4.3 and 4.6 of the Fee Schedule.

15.4 Translation of Foreign Currency Sales

ACADIA's then current standard exchange rate methodology will be employed for the translation of foreign currency sales into United States dollars. This methodology is used by ACADIA in the translation of its foreign currency operating results, is consistent with generally accepted accounting principles, is audited by ACADIA's independent certified public accountants in connection with the audit of the consolidated financial statements of ACADIA, and is used for external reporting of foreign currency operating results.

15.5 Payment

All payments to Neuren under this Agreement must be made:

(a) to the account that Neuren nominates in writing from time to time during the Term;

(b) electronically; and

(c) in US$.

If an amount specified in this Agreement is expressed in currency other than US$, that amount will be converted into US$ using the exchange rate methodology set out in clause 15.4.

15.6 Tax

If any withholding taxes are levied by any taxing authority in connection with the payment to Neuren of Fees, Royalties or other amounts under this Agreement and are required to be paid or deducted by ACADIA, ACADIA will withhold and pay such taxes from the applicable payment to Neuren to such taxing authority on behalf of Neuren and will promptly provide written evidence of such payment and such other related documentation as Neuren may reasonably require.

15.7 Fully Paid Licences

Unless the Agreement has been terminated under clause 22, upon expiration of the Exclusivity Period for a Product in a given country in the Territory, the licence granted to ACADIA in the applicable Field in such country in respect of that Product only (and not for any other indication, country or Product or Compound) shall survive any termination of this Agreement on a fully-paid, royalty-free, irrevocable, perpetual and non-exclusive basis.

16 Default interest

16.1 ACADIA to pay interest

If ACADIA fails to pay any undisputed amount payable under this Agreement on the due date for payment, ACADIA must pay interest on the amount unpaid at the rate of […***…]% per annum above the current Citibank N.A. published prime rate. This interest must be paid on demand.

16.2 Calculation of interest

The interest payable under clause 16.1 accrues daily from and including the due date for payment up to but excluding the actual date of payment.

16.3 Other remedies unaffected

Neuren's right to require payment of interest under this clause 16 does not affect any other rights and remedies it may have in relation to any failure to pay an amount due under this Agreement.

17 ACADIA to keep accounts and records

(a) Within the Term of this Agreement, Neuren may not more than […***…] each calendar year have an independent Third Party certified public accountant, proposed by Neuren and agreed to by ACADIA (such agreement not to be unreasonably withheld or delayed) (an "**Independent Auditor**"), inspect ACADIA's records for […***…] years preceding the period to which the applicable Royalties pertain for the purpose of determining the accuracy of royalty payments in accordance with the procedure set out in this clause 17. Upon Neuren's reasonable request, ACADIA shall exercise its right to appoint an Independent Auditor to audit each Sub-Licensee's records in accordance with this clause 17 and shall share the results of such audit with respect to amounts payable to Neuren under this Agreement.

(b) Neuren must submit an audit plan, including audit scope, to ACADIA for ACADIA's approval, which shall not be unreasonably withheld, prior to audit implementation. Such audits may be exercised during normal business hours upon reasonable prior written notice to ACADIA.

(c) Each Independent Auditor must be instructed to keep confidential any information obtained during such inspection and to report to Neuren and ACADIA only the amounts of Net Revenues and Royalties that have been or are due and payable.

(d) If determined that additional Royalties are owed, or that Royalties were overpaid, during such period, ACADIA will pay Neuren the additional Royalties, or Neuren will pay ACADIA the overpaid Royalties within […***…] days of the date the Independent Auditor's written report is received by the parties.

(e) The fees charged by an Independent Auditor will be paid by Neuren unless any additional Royalties owed to Neuren exceed […***…]% of the Royalties paid for the period subject to the audit, in which case ACADIA will pay the fees of the accounting firm.

18 Confidential Information

18.1 Confidential Information to be kept confidential

Subject to this clause 18, the receiving party must keep all Confidential Information (which shall include the Methodology) received either prior to the Commencement Date or during the Term, strictly confidential.

18.2 Prior consent

Subject to clauses 18.3, 18.8 and 18.9, neither party will directly or indirectly disclose, disseminate, distribute, divulge, sell or communicate to or use for any purpose except as expressly permitted by this Agreement or any other written agreement between the parties, any of the Confidential Information of the other party, unless and until the receiving party has first obtained the written consent of the other party.

18.3 Disclosure to employees and contractors

Subject to clauses 18.8 and 18.9, the receiving party will not directly or indirectly disclose Confidential Information of the other party to its employees, contractors or any other persons unless such persons necessarily require access to such Confidential Information in order to assist the receiving party to exercise its rights or perform its obligations under this Agreement.

18.4 Compliance by employees and contractors

(a) Each party will direct any of its employees, contractors or other persons to whom Confidential Information of the other party is disclosed to comply with the terms of this Agreement relating to confidentiality.

(b) Each party will be responsible for compliance by its officers, employees, agents, contractors, advisers or any other persons to whom Confidential Information of the disclosing party has been disclosed by or on behalf of the receiving party (including as permitted under clause 18.9(b)) with the receiving party's obligations under this clause 18.

18.5 Reasonable steps and precautions

Each party will take all reasonable steps to eliminate the risk of unauthorised disclosure of any Confidential Information that it has received from the other party or its Affiliates and the burden will be on the receiving party to show that all such precautions and care were used.

18.6 Uncertainty as to confidentiality

In the event of any uncertainty as to whether or not any part of the Confidential Information is confidential, the receiving party will treat that part of the Confidential Information, as the case may be, as confidential and will not disclose that part of the Confidential Information until the receiving party is advised by disclosing party in writing that that part of the Confidential Information is not part of the disclosing party's Confidential Information.

18.7 Unauthorised disclosure

If the receiving party becomes aware of any unauthorised disclosure or misuse of any Confidential Information of the disclosing party, it will immediately notify the disclosing party in writing of the full particulars of the unauthorised disclosure or misuse.

18.8 Exceptions to obligations

The restrictions contained in clause 18 shall not apply to information that the receiving party can prove by competent written evidence:

(a) is already in the public domain or becomes available to the public other than through breach of this Agreement by the receiving party;

(b) was lawfully in the receiving party's possession prior to the Commencement Date, other than as provided to the receiving party by the disclosing party or any of its Affiliates under the terms of the Prior Confidentiality Agreement or Initial Licence;

(c) was received by the receiving party independently from a Third Party free to disclose such information to receiving party without obligation of confidentiality; or

(d) was developed by the receiving party independent of any Confidential Information of the disclosing party.

18.9 Authorized disclosures

The receiving party may disclose Confidential Information of the disclosing party as expressly permitted by this Agreement or if and to the extent such disclosure is reasonably necessary in the following instances:

(a) submission by a receiving party to a Government Agency including, for the avoidance of doubt, any Regulatory Authorities, to facilitate the issuance of registrations for the Product, provided that reasonable measures shall be taken by the receiving party to assure confidential treatment of such Confidential Information (if possible);

(b) disclosure by the receiving party to Affiliates and Third Parties, including Sub-Licensees and potential Sub-Licensees, under confidentiality agreements having provisions at least as stringent as those in this Agreement, to facilitate the receiving party's exercise of its rights or performance of its obligations pursuant to this Agreement or in connection with due diligence investigations or financing transactions of the receiving party or its Affiliates; or

(c) is otherwise required to be disclosed in compliance with applicable laws or regulations (including, without limitation and for the avoidance of doubt, the requirements of the U.S. Securities and Exchange Commission (the "**SEC**") or any stock exchange on which securities issued by a party are traded) or order by a court or other regulatory body having competent jurisdiction, including prosecuting or defending litigation, provided that, if a party is required to make any such disclosure of the other party's Confidential Information, such party will give reasonable advance written notice to the disclosing party of such disclosure requirement and, except to the extent inappropriate in the case of patent applications, will use reasonable measures to secure confidential treatment of such Confidential Information required to be disclosed; or

18.10 Survival of obligations

The parties' confidentiality obligations under this Agreement will survive during the Term of this Agreement and for […***…] years thereafter.

18.11 Publications

(a) Each party and its Affiliates may propose for disclosure through academic or scientific publication or presentation any results of and other information regarding such party's Development activities with respect to any Compound or Product, whether by oral presentation, manuscript or abstract, with the prior review and approval of the JSC in accordance with the procedures set forth in this clause 18.11. The other party may consent in writing to such publication or presentation if the JSC is not scheduled to meet at a time that would allow for review on the timelines contemplated in this clause 18.11, in which case, references to the JSC review, comment and approval shall be deemed to refer to the party other than the party proposing to make such publication or presentation. Before any such information is submitted for publication or presentation of any such information is made, the party proposing to make such publication or presentation shall deliver a complete copy to the JSC at least […***…] days prior to submitting the material to a publisher or initiating any other disclosure. The JSC shall review any such material and give its comments to the publishing Party within […***…] days of receipt of such information. With respect to oral presentation materials and abstracts, the parties, through the JSC, will use reasonable efforts to expedite review of such materials and abstracts, and shall return such items as soon as practicable to the publishing party with comments, if any, but in no event later than […***…] days from receipt. The publishing party shall comply with the JSC's request to delete references to Confidential Information in any such publication or presentation and agrees to delay any submission for publication or other public disclosure for a period of up to an additional […***…] days for the purpose of preparing and filing appropriate patent applications. Notwithstanding the foregoing:

(i) after First Commercial Sale in the Territory of a Trofinetide Compound or Trofinetide Product:

(A) ACADIA may publish, present or disclose any information relating to any Trofinetide Compound or Trofinetide Product in the applicable Field, without JSC review or approval; and

(B) Neuren may publish, present or disclose any information that ACADIA has made publicly available relating to any Trofinetide Compound or Trofinetide Product in the applicable Field, without JSC review or approval; and

(ii) after first commercial sale outside the NNZ-2591 Field of a NNZ-2591 Compound or NNZ-2591 Product:

(A) ACADIA may publish, present or disclose any information relating to any NNZ-2591 Compound or NNZ-2591 Product in the NNZ-2591 Field, without JSC review or approval; and

(B) Neuren may publish, present or disclose any information relating to any NNZ-2591 Compound or NNZ-2591 Product outside the NNZ-2591 Field or any information that ACADIA has made publicly available within the NNZ-2591 Field, without JSC review or approval.

(b) Each party will be permitted to disclose information with respect to Development of any Compound or Product in the applicable Field on clinicaltrials.gov (or comparable website for any jurisdiction outside the United States) in accordance with normal business practices, without the need to obtain the consent of the other party or the JSC.

18.12 Prior agreements

As of the Effective Date, the terms of this clause 18 shall supersede any prior non-disclosure, secrecy or confidentiality agreement between the parties (or their Affiliates) dealing with the subject of this Agreement, including the Prior Confidentiality Agreement and Initial Licence. Any information disclosed pursuant to any such prior agreements shall be deemed Confidential Information for purposes of this Agreement.

18.13 Equitable Relief

Given the nature of the Confidential Information and the competitive damage that a party would suffer upon unauthorized disclosure, use or transfer of its Confidential Information to any Third Party, the parties agree that monetary damages would not be a sufficient remedy for any breach of this clause 18. In addition to all other remedies, a party shall be entitled to seek specific performance and injunctive and other equitable relief as a remedy for any breach or threatened breach of this clause 18.

19 Improvements

19.1 Improvements

If Neuren or ACADIA makes any Improvement, Neuren or ACADIA (as applicable) will forthwith disclose the same to the other party.

19.2 Improvements solely made by Neuren

If the Improvement is solely made by or on behalf of Neuren or any of its Affiliates (a "**Neuren Improvement**"), it will automatically form part of the Neuren IP upon the creation or acquisition of such Neuren Improvement by or on behalf of Neuren or its Affiliate (and test results and data within any such Neuren Improvement shall be subject to clause 8.2).

19.3 Improvements solely made by ACADIA

(a) If the Improvement is made by or on behalf of ACADIA or any of its Affiliates ("**ACADIA Improvement**"), such ACADIA Improvement shall be solely owned by ACADIA.

(b) ACADIA shall grant and hereby grants to Neuren during the Term an exclusive (other than with respect to ACADIA), royalty-free, fully-paid license, with rights to grant sublicences (subject to clause 14.6), under any ACADIA Improvement that is necessary or reasonably useful to make, have made, use, sell, and import a Product outside the applicable Field or outside the applicable Territory; provided that with respect to Trofinetide Compounds or Trofinetide Products, such licence shall only be effective upon termination of this Agreement in a given territory with respect to a given Trofinetide Compound or Trofinetide Product, and upon such termination, for use of such Trofinetide Compound or Trofinetide Product in such terminated territory.

19.4 Improvements made jointly by Neuren and ACADIA

If the Improvement is made jointly by or on behalf of Neuren and ACADIA or their respective Affiliates ("**Joint Improvement**"), each party shall own an equal undivided interest in such Joint Improvement. Each party shall have the unrestricted right to practice and use any Joint Improvement to make, have made, use, sell, offer for sale and import products; provided that with respect to Products, in the case of ACADIA, such rights shall be exclusive in the applicable Field, and in the case of Neuren, exclusive outside of the applicable Field, and rights to Joint Improvements shall be subject to any rights and licences granted by one party to the other party hereunder. Neither party shall have an obligation to obtain the other party's consent or account to the other with respect to the exploitation of such Joint Improvement or the grant of any right or licence to any other person to use or practice any Joint Improvement.

19.5 Execution of further documents

Each party agrees to do all things, take all reasonable actions and execute all documents necessary or desirable, at the requesting party's cost as and when reasonably required by a party, to give effect to this clause 19.

20 Prosecution and maintenance of Patents

20.1 Intention

The parties acknowledge that it is their intention that:

(a) ACADIA will be primarily responsible for and control the enforcement, prosecution and maintenance of the Trofinetide Patents and Trofinetide IP;

(b) ACADIA will be primarily responsible for and control the enforcement, prosecution and maintenance of the NNZ-2591 Patents and NNZ-2591 IP to the extent that they relate solely to the NNZ-2591 Field in the Territory; and

(c) Neuren will be primarily responsible for and control the enforcement, prosecution and maintenance of the NNZ-2591 Patents and NNZ-2591 IP in all other cases.

on and subject to the terms of this Agreement. Accordingly, for the purposes of this clause 20 and clause 21:

(d) for the Trofinetide Patents, Trofinetide IP, Trofinetide Compound and Trofinetide Product, ACADIA will be the Primary Party, the Trofinetide Patents will be ACADIA's Primary Patents and Neuren will be the Secondary Party; and

(e) for the NNZ-2591 Patents, NNZ-2591 IP, NNZ-2591 Compound and NNZ-2591 Product, Neuren will be the Primary Party, the NNZ-2591 Patents will be Neuren's Primary Patents and ACADIA will be the Secondary Party, except to the extent they solely relate to the NNZ 2591 Field in the Territory, in which case, ACADIA will be the Primary Party, they will be ACADIA's Primary Patents and Neuren will be the Secondary Party.

20.2 Patents applied for as of the Commencement Date

The Primary Party will take, or will procure that an Affiliate of the Primary Party takes, all actions necessary to achieve registration in a timely manner of any of its Primary Patents that either party or an Affiliate of either party has applied to have registered anywhere in the Territory as of the Commencement Date, and to maintain any of its Primary Patents when issued, at that Primary Party's expense.

20.3 Patents applied for after the Commencement Date

(a) If a Secondary Party requires any of the Primary Party's Improvements or Joint Improvements patents to be applied for in any country in the Territory, the Secondary Party will notify the Primary Party of this, and the Primary Party must notify the Secondary Party within […***…] days of such a request whether or not the Primary Party will file the patent application in some or all of the requested countries. If the Primary Party elects to file the patent application, the Primary Party will promptly file the patent application in those countries that the Secondary Party requests, and take all actions necessary to achieve registration of those patents in a timely manner, provided however that:

(i) all costs in applying for, prosecuting and registering such patent applications and maintaining any patents that issue thereon must be borne by the Primary Party; and

(ii) all such patent applications in respect of Neuren Improvements or Joint Improvements will be made in the name of Neuren or an Affiliate of Neuren; and

(iii) all such patent applications in respect of ACADIA improvements will be made in the name of ACADIA or an Affiliate of ACADIA.

(b) Once such patent applications have been filed, they will automatically form part of the Patents licensed to ACADIA by Neuren under this Agreement.

(c) If the Primary Party elects not to file for such patent application in any country in the Territory, the Primary Party shall promptly assign its interest in the Primary Party's Improvement or Joint Improvement and any rights to file for such patent applications to the Secondary Party and the Secondary Party may itself apply for, prosecute and register those patent applications and maintain any patents that issue thereon in such country in the Territory at its own cost and in its own name and the Secondary Party will own any and all rights therein in the applicable Field (and the foregoing shall no longer be included in the Primary Party's Improvements or Joint Improvements, as applicable).

20.4 Obligations in respect of Patents

Subject to clause 20.5(b), unless otherwise agreed between the parties, the Primary Party will procure that none of the Primary Party's Patents in respect of a Compound or Product or Joint Improvement patents are abandoned or allowed to lapse during the Term.

20.5 Cooperation; Secondary Party Step In Rights

(a) The Primary Party shall keep the Secondary Party informed of progress with regard to the preparation, filing, prosecution and maintenance of its Primary Patents in the Territory, including content, timing and jurisdiction of the filing of such Patents, and shall consult with, and follow the good faith requests and suggestions of, the Secondary Party with respect to filing and prosecuting the Primary Party's Primary Patents in the Territory.

(b) In the event that a Primary Party desires to abandon or cease prosecution or maintenance of any Primary Patent in the Territory, the Primary Party shall provide reasonable prior written notice to the Secondary Party of such intention to abandon (which notice shall, to the extent possible, be given no fewer than […***…] days prior to the next deadline for any action that must be taken with respect to any such Patent in the relevant patent office). In such case, at the Secondary Party's sole discretion, upon written notice from the Secondary Party to the Primary Party, the Secondary Party may elect to continue prosecution or maintenance of any such Patent at its own expense, and the Primary Party shall execute such documents and perform such acts, at the Primary Party's expense, as may be reasonably necessary to effect an assignment of the Primary Party's entire right, title, and interest in and to such Patent in the Territory in the Field to the Secondary Party. Any such assignment shall be completed in a timely manner to allow the Secondary Party to continue prosecution and maintenance of any such Patent in the Territory and any such Patent so assigned shall cease to be a Patent of the Primary Party and shall no longer be subject to any rights granted by the Secondary Party to the Primary Party under this Agreement.

(c) Each party agrees to cooperate fully in the preparation, filing, prosecution and maintenance of patent applications and patents as contemplated in this clause 20 and in the obtaining and maintenance of any patent term extensions, supplementary protection certificates and their equivalent with respect thereto. Such cooperation includes:

(i) executing all papers and instruments, or requiring its employees or contractors, to execute such papers and instruments, so as enable the other party to prepare, file for, prosecute and maintain patent applications and patents as contemplated in this clause 20; and

(ii) promptly informing the other party of any matters coming to such party's attention that may affect the preparation, filing, prosecution or maintenance of any such patent applications or patents.

Without limiting the foregoing, ACADIA shall have the sole authority and discretion to maintain with the applicable Governmental Agencies in the Territory during the Term listings of applicable Patents for any Product then being commercialized by ACADIA in the applicable Field in the Territory, including all Orange Book listings required under the Hatch-Waxman Act.

(d) Subject to clause 5.6, Neuren shall update ACADIA through the JSC (or pursuant to clause 7.2(a)(iii), as applicable) of material events with regard to the preparation, filing, prosecution and maintenance of patent applications and patents relating to any Compound or Product outside the applicable Field in the Territory.

21 Infringement of IP and Proceedings

21.1 Reporting infringement of Neuren IP

Upon either party becoming aware of any use by any other person of a method of Manufacture of any Product, a product, mode of advertising or design which might reasonably amount to infringement of any of the Neuren IP or to unfair competition or passing off or any other equivalent or similar breach of any applicable law within the Territory, that party will promptly report to the other party particulars.

21.2 Allegations of invalidity of Neuren IP

If it comes to the notice of either party that any person alleges that any part of the Neuren IP is invalid, infringes any rights of that person, or is open to any other form of attack, that party will not make any admission but will promptly report the matter in full detail to the other party.

21.3 Conduct of proceedings with respect to Neuren IP

(a) Subject to clause 21.3(c), if within […***…] days after reporting under clause 21.1, the parties fail to agree on a joint course of action with respect to an Infringement claim that specifically relates to any Product in the Field in the Territory ("**Infringement Claim**"), the Primary Party for that Product will have the first right to undertake the defence or prosecution of the Infringement Claim ("**Infringement Defence**").

(b) Should the Primary Party undertake any Infringement Defence, the Secondary Party will fully co-operate with the Primary Party in relation to such Infringement Defence, including, if required to bring such action, the furnishing of a power of attorney or being named as a party, and the costs and expenses of any such Infringement Defence will be borne by the Primary Party, unless the Secondary Party chooses to participate in such Infringement Defence in which case all parties will bear their own costs of the action. For the avoidance of doubt and subject to clause 21.3(c), the conduct of any Infringement Defence that the Primary Party undertakes in accordance with this clause 21.3 shall be controlled by the Primary Party. Unless otherwise agreed in writing as part of any cost-sharing arrangement, any recoveries resulting from such Infringement Defence shall be applied as follows:

(i) first, to reimburse each party for all out-of-pocket costs incurred by such party in connection with such Infringement Defence (on a pro rata basis, based on each party's respective litigation costs, to the extent the recovery was less than all such litigation costs); and

(ii) second, any remainder shall be retained by the Primary Party, except that, in the case where ACADIA is the Primary Party such amounts shall be regarded as Net Revenues and any applicable Royalty thereon paid to Neuren.

(c) Should the defence or prosecution of any Infringement Defence undertaken by the Primary Party also involve an Invalidity Claim ("**Infringement and Invalidity Defence**"):

(i) the Secondary Party and/or its Affiliates and any of the Secondary Party's or its Affiliates' Third Party licensees of any of the Neuren IP at issue outside the Field or outside the Territory ("**Third Party Licensees**") shall have the right, at their own expense, to be involved in such Infringement and Invalidity Defence as it relates to invalidity issues and the Primary Party will make no admissions which would materially prejudice the Secondary Party's or its Affiliates' or any Third Party Licensees' rights in such Neuren IP without the written consent of the Secondary Party, not to be unreasonably withheld;

(ii) any amounts recovered under an Infringement and Invalidity Defence that the Secondary Party and/or its Affiliates or Third Party Licensees participate in, will be shared in the same manner as set out in clause 21.3(b); and

(iii) other than for matters involving admissions which would materially prejudice the Secondary Party's or its Affiliates' or any Third Party Licensee's rights in such Neuren IP, the conduct of any Infringement and Invalidity Defence that the Primary Party undertakes in accordance with this clause 21.3 shall be controlled by the Primary Party in the same manner as an Infringement Defence.

(d) If within […***…] days after reporting under clause 21.2, the parties fail to agree on a joint course of action with respect to a claim or allegation challenging the validity, scope or enforceability of any Patent in the Territory or opposition proceeding against any Patent in the Territory, including *inter partes review* proceedings before PTAB or a similar tribunal in the Territory ("**Invalidity Claim**"), other than an Invalidity Claim that is part of any Infringement and Invalidity Defence pursuant to clause 21.3(c), the Primary Party will have the first right to undertake the defence or prosecution of the Invalidity Claim ("**Invalidity Defence**"), provided that the Secondary Party and its Affiliates and any Third Party Licensees shall have the right to participate in such action on the same conditions as an Infringement and Invalidity Defence as specified in clause 21.3(c), and the Invalidity Defence shall be conducted on the same conditions as an Infringement and Invalidity Defence as specified in clause 21.3(c). Any amounts recovered under an Invalidity Defence that the Secondary Party, or its Affiliates or Third Party Licensees participate in will be shared in the same manner as set out in clause 21.3(b).

(e) In the event of the Primary Party choosing not to undertake any Infringement Defence or Invalidity Defence, the Secondary Party and/or any of its Affiliates may do so on its own behalf and in that event, the Primary Party will fully co-operate with the Secondary Party or any of its Affiliates in relation to such action, and the costs and expenses of any such action, including any costs or expenses normally incurred by or on behalf of the Primary Party will be borne by the Secondary Party, except as otherwise stated in this Agreement, and the proceeds of any such action will belong to the Secondary Party or any of its Affiliates; provided, however, that with respect to the Trofinetide Patents in the Territory, Neuren shall not have the right to undertake any Infringement Defence or Invalidity Defence without the prior written consent of Acadia (not to be unreasonably withheld). To establish whether the Primary Party has chosen to undertake any Infringement Defence or Invalidity Defence, the Secondary Party

may at any time after becoming aware of such claim serve a notice on the Primary Party requesting the Primary Party to specify whether it will undertake the Infringement Defence or Invalidity Defence. The Primary Party will have […***…] Business Days from the date of receipt of such notice, or if later until the date that is:

(i) […***…] days following the notice in clause 21.1 or 21.2; or

(ii) […***…] days before the time limit, if any, set forth in the appropriate laws and regulations for the filing or defence of such actions,

whichever of clause 21.3(e)(i) or (ii) comes first, to respond to the Secondary Party in writing. If the Primary Party does not respond to the Secondary Party in writing within the specified time period, the Primary Party will be deemed to have undertaken not to undertake the Infringement Defence or Invalidity Defence. Neither the Secondary Party nor its Affiliate shall settle or compromise any such action or proceeding in any manner that would negatively affect the Primary Party's rights under the Patents in the Territory under this Agreement without the prior written consent of the Primary Party, which shall not be unreasonably withheld.

21.4 Infringement of Third Party rights

(a) Each party shall promptly notify the other party in writing of any allegation by a Third Party that the activity of either party, or any of their respective Affiliates or Third Party licensees or sub-licensees (or Sub-Licensees), as applicable, pursuant to this Agreement infringes or may infringe the Intellectual Property Rights of a Third Party. Subject to Neuren's indemnification obligations, ACADIA shall have the sole right to control any defence of any such claim involving alleged infringement of Third Party rights by activities of ACADIA or its Affiliates or Sub-Licensees at its own expense and by counsel of its own choice, and Neuren shall have the right, at its own expense, to be represented in any such action by counsel of its own choice. Subject to ACADIA's indemnification obligations, Neuren shall have the sole right to control any defence of any such claim involving alleged infringement of Third Party rights by activities of Neuren or its Affiliates or Third Party licensees or sub-licensees at its own expense and by counsel of its own choice, and ACADIA shall have the right, at its own expense, to be represented in any such action by counsel of its own choice.

(b) Neither Party shall enter into any settlement of any claim described in this clause 21.4 that negatively affects the other party's rights or interests without such other party's written consent, which consent shall not be unreasonably withheld, conditioned or delayed. Each party shall have the right to decline to defend or to tender defence of any such claim to the other party upon reasonable notice, including if the other party fails to agree to a settlement that such party proposes.

22 Termination

22.1 Termination by Neuren

Neuren may immediately terminate this Agreement with respect to a given Product with immediate effect by giving 10 Business Days' notice in writing to ACADIA if, with respect to such Product:

(a) ACADIA challenges the validity of any of the Patents within the Neuren IP that is registered or opposes the grant to Neuren of registration of any of the Patents with the Neuren IP that is not registered; or

(b) it is permitted to do so under clause 4.7.

22.2 Termination by ACADIA

ACADIA may elect to terminate this Agreement at any time in its entirety or on a Product-by-Product basis, by providing 90 Business Days' prior written notice to Neuren, provided that at any time after such notice by ACADIA, Neuren may accelerate the commencement date of such termination by providing 30 Business Days' prior written notice to ACADIA of such accelerated commencement date.

22.3 Termination by either party for breach

Either party may terminate this Agreement with immediate effect, solely with respect to a given Product or country, by giving notice to the other party ("**Defaulting Party**") if, with respect to such Product or country:

(a) the Defaulting Party breaches any provision of this Agreement requiring the payment of a monetary amount and fails to remedy the breach within 30 Business Days after receiving notice requiring it to do so with respect to any undisputed payment amounts; or

(b) the Defaulting Party breaches any material provision of this Agreement (other than any provision requiring the payment of a monetary amount) and fails to remedy the breach within 60 Business Days after receiving notice requiring it to do so.

If the Defaulting Party has a dispute as to whether such breach occurred or has been cured, it will so notify the non-Defaulting Party, and the expiration of the applicable cure period shall be suspended until such dispute is resolved pursuant to clause 28. Upon a determination of breach or failure to cure, the Defaulting Party may have the remainder of the applicable cure period to cure such breach. If such breach is not cured within the applicable cure period, then absent withdrawal of the non-Defaulting Party's request for termination, this Agreement shall terminate with respect to the applicable Product or country as of the expiration of the applicable cure period.

For clarity, if a party has a right to terminate this Agreement due to an uncured material breach of the other party, and such breach relates solely to a particular Product or country, then the non-breaching party may terminate this Agreement solely with respect to such Product or country, and not this Agreement in its entirety.

23 Rights on Termination

23.1 Termination without prejudice to rights or obligations of parties

Any termination of this Agreement will be without prejudice to the rights, and without relief of obligations, of either party accruing prior to such termination or in respect of any sums or other claims outstanding at the time of termination.

23.2 Effect of any termination

Upon any termination of this Agreement under clause 22.1, 22.2 or 22.3 with respect to a given Product or country, then, solely with respect to such terminated Product or country:

(a) ACADIA will immediately pay any sums payable to Neuren including without limitation all Royalties which are then due and payable;

(b) except to the extent of any surviving licences as provided under clause 15.7, ACADIA will immediately cease to use the Neuren IP in any connection whatsoever;

(c) except to the extent of any surviving licences as provided under clause 15.7 or to the extent that Neuren is entitled to information from ACADIA pursuant to clause 23.3, each party shall promptly return to the other party, or delete or destroy, all relevant records and materials in such party's possession or control containing Confidential Information of the other party; provided that such party may keep

one copy of such information for archival purposes only subject to continuing confidentiality obligations; and

(d) in the case of termination in respect of a given country and subject to clause 23.3, that country will be excluded from the definition of Initial Territory, New Territory and Territory (as applicable) for the applicable Compound and Product.

23.3 Additional effect of termination under clause 22.2 or by Neuren under clause 22.1 or 22.3

Upon any termination of this Agreement by Neuren under clause 22.1 or 22.3 or by ACADIA under clause 22.2 with respect to a given Product or country, then, solely with respect to such terminated Product or terminated country:

(a) subject to clause 23.3(a)(v), ACADIA will do the following, except in any country in which there is a surviving licence as provided under clause 15.7:

(i) at Neuren's expense, arrange for the transfer of all of the Marketing Authorisations and any IND with respect to such terminated Product in such terminated country held by ACADIA or its Affiliate to Neuren or its nominated representative and to take all actions reasonably necessary to ensure the transfer of those Marketing Authorisations and any IND to Neuren or its nominated representative occurs in a timely manner;

(ii) at Neuren's expense, arrange for the transfer of sponsorship of any clinical or non-clinical studies of such terminated Product in such terminated country of which ACADIA or its Affiliate is the sponsor that are in progress to enable Neuren to continue such studies if it elects to do so by written notice to ACADIA provided on or before the effective date of termination;

(iii) at ACADIA's expense:

(A) transfer to Neuren electronic copies of all data, reports, Methodology and Know-how solely relating to such terminated Product (or relevant Compound contained therein) that are Controlled by ACADIA or its Affiliates, to the extent necessary or reasonably useful for use or sale of such terminated Product in such terminated country;

(B) following termination of all rights in the Territory with respect to such terminated Product, deliver up all physical copies of the Methodology and Neuren and its Affiliates' Confidential Information and Know-how relating to such terminated Product; and

(C) following termination of all rights in the Territory with respect to such terminated Product, permanently delete all electronic copies of the Methodology, Neuren and its Affiliates' Confidential Information and Know-how relating to such terminated Product (or relevant Compound contained therein), including any notes, reports and documents which contain or refer to the Methodology, Neuren and its Affiliates' Confidential Information and Know-how relating to such terminated Product in ACADIA's possession, power or control; provided, however, that ACADIA retain one copy of such Confidential Information and Know-how for legal archival purposes only; provided, however, if there is a surviving licence in any country as provided under clause 15.7, ACADIA will share copies of the foregoing with Neuren for use in all countries excluding any country in which ACADIA retains a license, and ACADIA shall retain all of the foregoing for use pursuant to any country in which ACADIA retains a license;

(iv) ACADIA must not, at any time, use any trademarks previously used by it that solely relate to such terminated Product (or relevant Compound contained therein) in such terminated country or use any trademarks, names, labels or logos deceptively or confusingly similar to those trademarks; for clarity, in no event shall the foregoing apply to any trademark, name, label or logo with respect to the name ACADIA or Acadia Pharmaceuticals Inc.; and

(v) ACADIA will be entitled to sell off and distribute (but not Manufacture or produce except for completion of any work-in-progress, at the election of ACADIA) such terminated Products in such terminated country existing at the date of termination for a period of […***…] from such date on the same terms and conditions amended as necessary as are contained in this Agreement.

(b) ACADIA shall, and hereby does effective upon such termination, grant to Neuren an exclusive, royalty-free, fully-paid license, with rights to grant sublicences, under any ACADIA Improvement or Joint Improvement that is necessary or reasonably useful to make, have made, use, sell, or import such terminated Product in the Field in or for use in such terminated country (excluding any country in which there is a surviving licence as provided under clause 15.7), to make, have made, use, sell, and import such terminated Product in the Field in or for use in such terminated country (excluding any country in which there is a surviving licence as provided under clause 15.7).

(c) ACADIA shall grant Neuren a right to source such terminated Product (or the relevant Compound contained therein) from ACADIA at ACADIA's Manufacturing Cost for a period of […***…] from the effective date of such termination; provided that the allocation of supply will prioritise ACADIA's continuing Development and Commercialization (in non-terminated territories, if any) of any such terminated Product (or the relevant Compound contained therein).

(d) following termination of all rights in the Territory with respect to such terminated Product, at the expiry of the […***…] period referred to in clause 23.3(a)(v), in any country in the Territory (excluding any country in which there is a surviving licence as provided under clause 15.7):

(i) ACADIA will cease to sell such terminated Product and will supply to Neuren an inventory of ACADIA's stocks of the Product at that date verified by an independent accountant ("**Inventory**");

(ii) Neuren will be entitled to purchase from ACADIA all or part of the Inventory at prices agreed between Neuren and ACADIA;

(iii) ACADIA will comply with all of the provisions of clause 23.3(a) and (b) that it has not already complied with; and

(iv) Neuren will be required to relabel and repackage materials to remove any ACADIA trademarks, trade dress or other indications of ACADIA origin from such terminated Product, but will be entitled to continue to use the content of the Promotional Materials.

(e) In such terminated Territory (excluding any country in which there is a surviving licence as provided under clause 15.7) and if Neuren so requests, any sublicence granted by ACADIA to any Sub-Licensee shall remain in effect and become a direct licence from Neuren, so long as actions or omissions by the applicable Sub-Licensee did not cause or contribute to such termination and is not then in material breach of its Sub-Licence Agreement and such Sub-Licensee provides

to Neuren within […***…] days after such termination of this Agreement a written agreement to be bound as licensee under the terms and conditions of this Agreement as to the field and territory in which such Sub-Licensee has been granted rights under its Sub-Licence Agreement.

(f) Notwithstanding the foregoing and anything else in this Agreement (including without limitation clauses 4.5 and 9(j)(i)), Neuren's exclusivity obligations with respect to Rett Syndrome and Fragile X Syndrome as set forth in clause 11.1(b) shall survive any termination of this Agreement (including any partial termination of this Agreement or termination of this Agreement in relation to a given territory) with respect to NNZ-2591 Compound or NNZ-Product for the period described in clause 11.1(b).

23.4 Survival

Clauses 1, 8.2, 10.7(c), 12.2, 13.2, 15.7, 17, 18 (for the period specified therein), 19.2, 19.3(a), 19.4, 19.5, 23, 24, 25, 27, 28, 29 and any other right, obligation, or required performance of the parties in this Agreement which, by its express terms or nature and context is intended to survive termination or expiration of this Agreement, shall survive any such termination or expiration.

24 Liability, Indemnity and Insurance

24.1 ACADIA and Neuren liability

Subject to the terms and conditions of this Agreement, including clauses 24.2 and 24.3, each party shall be solely responsible for any acts or omissions with respect to the activities or failures to act of such party or its Affiliates, including as follows:

(a) ACADIA will be responsible for the Development, Manufacture, advertising, marketing, distribution or sale of the Compound and each Product in the applicable Field in the Territory and will bear all risk and liability, loss and damage arising from such Development, Manufacture, advertising, marketing, distribution and sale in the applicable Field in the Territory.

(b) Neuren will be responsible for the Development, Manufacture, advertising, marketing, distribution or sale of the Compound and each Product outside the applicable Field or outside the applicable Territory, and will bear all risk and liability, loss and damage arising from such Development, Manufacture, advertising, marketing, distribution and sale outside the applicable Field or outside the applicable Territory.

24.2 Indemnity by ACADIA

ACADIA agrees to indemnify and hold harmless Neuren, each of Neuren's Affiliates, and each of Neuren's and Neuren's Affiliates' directors, officers, employees, contractors and agents ("**Neuren Indemnified Parties**") against all liability, expenses, losses, damages and costs (including reasonable attorneys' fees and expenses) ("**Losses**") incurred by or awarded against any Neuren Indemnified Party as a result of any claim, demand, action, or other proceeding by any Third Party ("**Claim**"), to the extent arising out of or in connection with:

(a) Claims made in connection with the Compound or any Product Manufactured by ACADIA or any contract manufacturer appointed by ACADIA or in connection with the Development, advertising, marketing, distribution or sale of the

Compound or any Product in the applicable Field in the Territory by ACADIA or its Affiliates or any Sub-Licensee;

(b) Claims made in connection with any clinical trials conducted by ACADIA in relation to any Product in the applicable Field in the Territory;

(c) a breach by ACADIA, its officers, employees, contractors or agents of this Agreement or the Initial Licence;

(d) a breach by ACADIA of any of its warranties or representations contained within this Agreement or the Initial Licence; and

(e) the negligence or wilful misconduct of ACADIA or its officers, employees, contractors or agents in connection with this Agreement or the Initial Licence;

in each case except to the extent caused or contributed to by Neuren's fraud, negligence or wilful misconduct, and excluding Claims that the possession or use of any Compound, Product or Neuren IP in the applicable Field infringes any Third Party's Intellectual Property Rights.

24.3 Indemnity by Neuren

Neuren agrees to indemnify and hold harmless ACADIA, each of ACADIA's Affiliates, and each of ACADIA's and ACADIA's Affiliates directors, officers, employees, contractors and agents ("**ACADIA Indemnified Parties**") against all Losses incurred by or awarded against any ACADIA Indemnified Party as a result of any Claim, to the extent arising out of or in connection with:

(a) Claims made in connection with the Compound or any Product Manufactured by Neuren or any contract manufacturer appointed by Neuren or in connection with the Development, advertising, marketing, distribution or sale of the Compound or any Product by Neuren or its Affiliates, licensees or sub-licensees outside the applicable Field or pursuant to any rights granted under clause 23.3;

(b) a breach by Neuren, its officers, employees, contractors or agents of this Agreement or the Initial Licence;

(c) a breach by Neuren of any of its warranties or representations contained within this Agreement or the Initial Licence;

(d) the negligence or wilful misconduct of Neuren or its officers, employees, contractors or agents in connection with this Agreement or the Initial Licence; and

(e) any Claims made in connection with the Product to the extent that such claim arises solely from conduct of Neuren which occurred prior to the Commencement Date,

except to the extent caused or contributed to by ACADIA's fraud, negligence or wilful misconduct.

24.4 Indemnification Procedures

Any entity entitled to indemnification under clause 24.2 or 24.3 shall give notice to the indemnifying party of any Losses or Claims that may be subject to indemnification, promptly after learning of such Losses or Claims, and the indemnifying party shall assume the defence of such Claims with counsel reasonably satisfactory to the indemnified party. If such defence is assumed by the indemnifying party with counsel so selected, the indemnifying party will not be subject to any liability for any settlement of such Losses or Claims made by the indemnified party without its consent (but such consent will not be unreasonably withheld or delayed), and will not be obligated to pay the fees and expenses of any separate counsel retained by the indemnified party with respect to such Losses or Claims.

24.5 No liability for consequential loss

Notwithstanding anything else in this Agreement, both parties expressly exclude liability for:

(a) indirect, special, incidental, or consequential loss or damage which may arise in respect of this Agreement; and

(b) loss of profit, business, revenue, goodwill or anticipated savings;

provided, however, that this clause 24.5 shall not be construed to limit either party's liability for breach of clause 18. For the avoidance of doubt, if a party is required to pay or compensate a Third Party for a loss or damage referred to in clause 24.5(a) or (b) as part of a Claim and that party is entitled to an indemnity from the other party in respect of that

claim under clause 24.2 or 24.3, the indemnity shall extend to such loss or damage paid to the Third Party and this clause 24.5 shall not be construed to limit either party's indemnification obligations in respect of the amounts paid to that Third Party.

24.6 Product recall

(a) In the event of a recall of any Product in the Territory, which shall be done by:

(i) ACADIA with respect to a Trofinetide Product,

(ii) ACADIA with respect to an NNZ-2591 Product in the NNZ-2591 Field; and

(iii) Neuren with respect to an NNZ-2591 Product outside of the NNZ-2591 Field

(such recalling Party, the "**Recalling Party**") in the sole discretion of the Recalling Party but in compliance with all applicable laws, rules and regulations, the Recalling Party must pay all costs in association with such recall, including reimbursement for the cost of any faulty Product supplied by such Recalling Party, subject to the parties' indemnification obligations under this clause 24.

(b) In any case where a party believes that a change in the risk-benefit-ratio of any Product becomes evident or safety actions due to adverse drug reactions seem to be necessary (for example, change of label, product information, special information/warnings to the medical profession, patients or authorities or a Product recall), such party will inform the other party of material details in a timely fashion.

25 Publicity

(a) The parties agree to jointly develop the first public announcements by the parties of the execution of this Agreement on the Commencement Date.

(b) ACADIA may issue subsequent public announcements with respect to its Development and Commercialization of Compounds and Products in the

applicable Field in the Territory; subject to clause 18 and clauses 25(d) and 25(e).

(c) In subsequent public announcements, Neuren shall not include information regarding the Development and Commercialization of Product in the applicable Field in the Territory that is not already in the public domain without the prior written approval of ACADIA, not to be unreasonably withheld.

(d) The parties agree to consult with each other reasonably and in good faith with respect to the text and timing of public announcements or press releases regarding activities with respect to any Product contemplated by this Agreement prior to the issuance of any such announcement or press releases to the extent not previously disclosed in accordance with this clause 25, provided that a party may not unreasonably withhold, condition or delay consent to such announcements or releases, and that either party may issue such press releases or make such disclosures to the SEC pursuant to Form 8-K or pursuant to local fiscal reporting laws, filing regulations and stock exchange disclosure rules or otherwise as it determines, based on advice of counsel, are reasonably necessary to comply with applicable laws, rules or regulations or for appropriate market disclosure.

(e) The parties will consult with each other on the provisions of this Agreement to be redacted in any filings made by a party with the SEC or as otherwise required by applicable laws, rules or regulations. In addition, following the initial press releases by the parties announcing this Agreement, either party shall be free to disclose, without the other party's prior written consent, the existence of this

Agreement, the identity of the other party and those terms of the Agreement which have already been publicly disclosed in accordance herewith.

26 Force majeure

(a) Any delay in the performance of any of the duties or obligations of either party hereto shall not be considered a breach of this Agreement, and the time required for performance shall be extended for a period equal to the period of such delay, if such delay has been caused by or is the result of acts of God; acts of public enemy; insurrections; riots; injunctions; embargoes; labour disputes, including strikes, lockouts, job actions, or boycotts; fires; explosions; earthquakes; floods; shortages of energy; governmental prohibition or restriction; or other unforeseeable causes beyond the reasonable control and without the fault or negligence of the party so affected. The party so affected shall give prompt notice to the other party of such cause, and shall take whatever reasonable steps are necessary to relieve the effect of such cause as rapidly as reasonably possible.

(b) This clause 26 does not apply to any obligations to pay money.

27 Notices

27.1 Method

All notices, requests, demands, consents, approvals, offers, agreements or other communications given by a party under or in connection with this Agreement must be:

(a) in writing;

(b) signed by a person duly authorised by the sender or, where transmitted by e-mail, sent by a person duly authorised by the sender;

(c) directed to the intended recipient's address (as specified in clause 27.3 or as varied by any notice); and

(d) hand delivered, sent by prepaid post or transmitted by e-mail to that address.

27.2 Receipt

A Notice given in accordance with this clause is taken as having been given and received:

(a) if hand delivered, on delivery;

(b) if sent by prepaid post:

(i) within Australia or within the United States, on the third Business Day after the date of posting;

(ii) except as provided in clause 27.2(b)(i), on the seventh Business Day after the date of posting; or

(c) if transmitted by e-mail, on transmission, subject to confirmation of receipt;

but if the delivery or transmission is not on a Business Day or is after 5.00pm (recipient's time) on a Business Day, the notice is taken to be received at 9.00am (recipient's time) on the next Business Day.

27.3 Address of parties

Unless varied by notice in accordance with this clause 27, the parties' addresses and other details are:

Party: Neuren
Attention: […***…]
Address: Suite 201, 697 Burke Road, Camberwell, Victoria, 3124, Australia
E-mail: […***…]

Party: ACADIA
Attention: Liz Carter, VP, Business Development, Head of Strategic Transactions & Partnering
Address: 12830 El Camino Real, Suite 400, San Diego, California 92130, USA
E-mail: […***…]

28 Disputes

28.1 No arbitration or court proceedings

If a dispute arises out of or in relation to this Agreement ("**Dispute**") no party to the Dispute ("**Disputant**") will start arbitration or court proceedings (except proceedings seeking interlocutory relief) unless it has complied with this clause 28. Notwithstanding the foregoing, Disputes within the authority of the JSC as described in clause 5.4(f)(i) or clause 5.4(f)(ii) shall be resolved in the manner provided in clause 5.4(f)(i) or clause 5.4(f)(ii), respectively.

28.2 Notice

A party claiming that a Dispute has arisen must notify each other Disputant in writing giving details of the Dispute and its proposal for a resolution.

28.3 Initial Period

For a […***…] day period after a notice is given, each Disputant must use all reasonable endeavours to resolve the Dispute and the CEO of each Disputant, or their designee, will meet within the first […***…] days of that period with that aim. Such resolution, if any, of a Dispute shall be final and binding on the parties. All negotiations pursuant to this clause 28 are confidential and shall be treated as compromise and settlement negotiations for purposes of applicable rules of evidence.

28.4 Final Resolution

(a) If the CEOs are unable to settle the dispute within the period described in clause 28.3, the matter will be referred to arbitration for final resolution.

(b) The arbitration will be conducted under the ICC Rules of Arbitration of the International Chamber of Commerce as modified by any other instructions that the parties may agree upon at the time.

(c) There shall be three arbitrators, unless the parties are able to agree on a single arbitrator. In the absence of such agreement within […***…] days after the initiation of an arbitration proceeding, Neuren shall select one arbitrator and ACADIA shall select one arbitrator, and those two arbitrators shall then select, within […***…] days, a third arbitrator. If those two arbitrators are unable to select a third arbitrator within such […***…] day period, a third arbitrator shall be appointed by the ICC International Court of Arbitration. Within […***…] days of the appointment of such third arbitrator, the arbitrators shall issue a decision. The decision in writing of at least two of the three arbitrators shall be final and binding upon the parties.

(d) The governing law for the arbitration will be the law of the State of New York and, unless the parties otherwise agree, the forum for the arbitration will be New York City, New York.

(e) The arbitrators' decision shall be in writing and shall provide a reasoned basis for the resolution of each dispute and for any award.

(f) Each party shall bear its own fees and expenses with respect to the arbitration and any proceeding related thereto and the parties shall share equally the fees and expenses of the ICC International Court of Arbitration and the arbitrators.

(g) The arbitrators shall have power and authority to award any remedy or judgment that could be awarded by a court of law in the State of New York. The award rendered by arbitration shall be final and binding upon the parties, and judgment upon the award may be entered in any court of competent jurisdiction in the United States or in Australia to the extent required for enforcement purposes.

28.5 Costs

Each Disputant must bear its own costs of complying with this clause 28.

29 General

29.1 Entire agreement

Other than the Prior Confidentiality Agreement, this Agreement constitutes the entire agreement between the parties in relation to its subject matter from and after the Commencement Date. All prior discussions, undertakings, agreements, representations, warranties and indemnities in relation to that subject matter other than the Prior Confidentiality Agreement are replaced by this Agreement and have no further effect from and after the Commencement Date.

29.2 Paramountcy of Agreement

If this Agreement conflicts with any other document, agreement or arrangement between the parties, this Agreement prevails to the extent of the inconsistency.

29.3 No merger

The provisions of this Agreement will not merge on completion of any transaction contemplated in this Agreement and, to the extent any provision has not been fulfilled, will remain in force.

29.4 Amendment

This Agreement may not be amended or varied unless the amendment or variation is in writing signed by all parties.

29.5 Assignment; Change of Control

Neither party may assign its rights and obligations under this Agreement without the prior written consent of the other party, except that:

(a) either party may make such assignment without the prior written consent of the other party to an Affiliate (so long as such party shall remain jointly and severally liable with such Affiliate with respect to all obligations so assigned); and

(b) either party may, without the prior written consent of the other party, assign its rights and transfer its duties hereunder to any acquirer of all or substantially all of its business or in the event of such party's merger, consolidation or involvement in a similar transaction.

If Neuren determines to initiate a Change of Control process or transaction, then prior to initiating any discussions or negotiations with a Third Party, but in any event not later than engaging an advisor or investment banker to advise on a Change of Control, Neuren shall notify ACADIA of its initiation of the process or transaction and allow ACADIA to participate in such process or negotiations on the same terms as applicable to all other participants in such process or transaction.

No assignment will release either party from responsibility for the performance of any accrued obligation of such party hereunder. Any purported assignment in contravention of this clause 29.5 will, at the option of the non-assigning party, be null and void and of no effect. This Agreement shall be binding upon and enforceable against the successor to or any permitted assignee from either of the parties.

29.6 Severability

Part or all of any provision of this Agreement that is illegal or unenforceable will be severed from this Agreement and will not affect the continued operation of the remaining provisions of this Agreement.

29.7 Waiver

Waiver of any power or right under this Agreement:

(a) must be in writing signed by the party entitled to the benefit of that power or right; and

(b) is effective only to the extent set out in that written waiver.

29.8 Rights, remedies additional

Any rights and remedies that a person may have under this Agreement are in addition to and do not replace or limit any other rights or remedies that the person may have.

29.9 Further assurances

Each party must use Commercially Reasonable Efforts to do or cause to be done all things necessary or reasonably desirable to give full effect to this Agreement and the transactions contemplated by it (including, but not limited to, the execution of documents).

29.10 Costs

Each party must bear its own legal, accounting and other costs for the preparation and execution of this Agreement.

29.11 Electronic execution and delivery of Agreement

(a) This Agreement may be electronically executed and each person signing this Agreement may sign a separate counterpart of this Agreement.

(b) A company may execute this Agreement by its authorised representative signing electronically or in wet ink. If execution is under common seal, the fixing of the seal may be observed by electronic means.

(c) A party may deliver its executed counterpart or any other document executed in connection with it by electronic means and the delivery will be deemed to be an effective delivery of an originally executed counterpart.

29.12 Counterparts

This Agreement may be executed in any number of counterparts and all counterparts taken together will constitute one document.

29.13 Initial Licence

The parties agree that upon the Commencement Date, the Initial Licence will be amended and restated as set out in this Agreement. The amendment and restatement will not adversely affect any act or thing that was validly done under the Initial Licence prior to the Commencement Date.

29.14 Governing law and jurisdiction

This Agreement will be governed by and construed in accordance with the laws in force in the State of New York, without reference to its conflicts of law principles with the

exception of sections 5-1401 and 5-1402 of New York General Obligations Law, and each party submits to the exclusive jurisdiction of the courts of the State of New York.

Schedule 1 Fee Schedule

In this Schedule:

Region A	means the EMA Region plus the United Kingdom, Iceland, Norway, Switzerland and Liechtenstein
Region B	means Japan
Region C	means the New Territory other than Region A and Region B

1 Upfront Fee

The Upfront Fee is US$100 million and will be payable by ACADIA to Neuren within 10 Business Days after signing of this Agreement.

For the avoidance of doubt, this Upfront Fee is in addition to the US$10 million Phase II Reimbursement Fee already paid by ACADIA pursuant to the Initial Licence prior to the Commencement Date.

2 Development Milestone Fee

2.1 Trofinetide Compound and Trofinetide Product

Subject to clauses 2.3(c) and 2.3(e) of this Fee Schedule, the Development Milestone Fees in respect of the Trofinetide Compound and Trofinetide Product are as set out in the following table:

Development Milestone – Initial Territory		**Development Milestone Fee**
1	FDA accepts for review ACADIA's first Rett Syndrome NDA for a Trofinetide Product in the US	US$10 million
2	ACADIA's First Commercial Sale of a Trofinetide Product for Rett Syndrome in the US	US$40 million
3	[…***…]	US$[…***…]
4	[…***…]	US$[…***…]
5	[…***…]	US$[…***…]
Development Milestone – New Territory		**Development Milestone Fee**
1	ACADIA's First Commercial Sale of a Trofinetide Product for Rett Syndrome in the […***…]	US$35 million

	European Markets ([…***…])	
2	ACADIA's First Commercial Sale of a Trofinetide Product for Rett Syndrome in Japan	US$15 million
3	ACADIA's First Commercial Sale of a Trofinetide Product for a second indication in the […***…] European Markets ([…***…])	US$10 million
4	ACADIA's First Commercial Sale of a Trofinetide Product for a second indication in Japan	US$3.75 million

2.2 NNZ-2591 Compound and NNZ-2591 Product

Subject to clauses 2.3(c) and 2.3(e) of this Fee Schedule, the Development Milestone Fees in respect of the NNZ-2591 Compound and NNZ-2591 Product are as set out in the following table:

Development Milestone – Initial Territory		**Development Milestone Fee**
1	[…***…]	US$[…***…]
2	[…***…]	US$[…***…]
3	[…***…]	US$[…***…]
Development Milestone – New Territory		**Development Milestone Fee**
1	ACADIA's First Commercial Sale of a NNZ-2591 Product for Rett Syndrome in the […***…] European Markets ([…***…])	US$35 million
2	ACADIA's First Commercial Sale of a NNZ-2591 Product for Rett Syndrome in Japan	US$15 million
3	ACADIA's First Commercial Sale of a NNZ-2591 Product for a second indication in the […***…] European Markets ([…***…])	US$10 million
4	ACADIA's First Commercial Sale of a NNZ-2591 Product for a second indication in Japan	US$3.75 million

2.3 Payment of Development Milestone Fees

(a) The Development Milestone Fee will be payable within […***…] days of the achievement of the relevant Development Milestone.

(b) Subject to clause 2.3(c) of this Schedule, and for the avoidance of doubt, if more than one Development Milestone is reached in any year, the relevant Development Milestone Fee for each of those Development Milestones will be payable in accordance with this Agreement.

(c) If ACADIA develops both a Trofinetide Compound and a NNZ-2591 Compound for the same indication in a given territory, each Development Milestone in respect of that indication in the relevant territory will be payable only once, and not payable for each of a Trofinetide Compound and a NNZ-2591 Compound.

(d) Each Development Milestone Fee will be payable only once, upon first achievement regardless of the number of times such Development Milestone is achieved.

(e) The parties acknowledge that Development Milestones 1 and 2 for the Trofinetide Product in the Initial Territory were achieved prior to the Commencement Date and the relevant Development Milestone Fees in respect of those Development Milestones have been paid.

3 Sales Milestone Fees

3.1 Trofinetide Product

The Sales Milestone Fees in respect of Trofinetide Products are as set out in the following table:

Sales Milestone – Initial Territory		**Sales Milestone Fee**
1	The end of the first calendar year in which the aggregate Net Revenue from all Trofinetide Product in the Initial Territory in that calendar year equals or exceeds US$250 million	US$50 million
2	The end of the first calendar year in which the aggregate Net Revenue from all Trofinetide Product in the Initial Territory in that calendar year equals or exceeds US$500 million	US$50 million
3	The end of the first calendar year in which the aggregate Net Revenue from all Trofinetide Product in the Initial Territory in that calendar year equals or exceeds US$750 million	US$100 million
4	The end of the first calendar year in which the aggregate Net Revenue from all Trofinetide Product in the Initial Territory in that calendar year equals or exceeds US$1,000 million	US$150 million
Sales Milestone – Region A		**Sales Milestone Fee**

1	The end of the first calendar year in which the aggregate Net Revenue from all Trofinetide Product in Region A in that calendar year equals or exceeds US$[…***…]	US$[…***…]
2	The end of the first calendar year in which the aggregate Net Revenue from all Trofinetide Product in Region A in that calendar year equals or exceeds US$[…***…]	US$[…***…]
3	The end of the first calendar year in which the aggregate Net Revenue from all Trofinetide Product in Region A in that calendar year equals or exceeds US$[…***…]	US$[…***…]
4	The end of the first calendar year in which the aggregate Net Revenue from all Trofinetide Product in Region A in that calendar year equals or exceeds US$[…***…]	US$[…***…]
Sales Milestone – Region B		**Sales Milestone Fee**
	The end of the first calendar year in which the aggregate Net Revenue from all Trofinetide Product in Region B in that calendar year equals or exceeds US$[…***…]	US$[…***…]
	The end of the first calendar year in which the aggregate Net Revenue from all Trofinetide Product in Region B in that calendar year equals or exceeds US$[…***…]	US$[…***…]
	The end of the first calendar year in which the aggregate Net Revenue from all Trofinetide Product in Region B in that calendar year equals or exceeds US$[…***…]	US$[…***…]
	The end of the first calendar year in which the aggregate Net Revenue from all Trofinetide Product in Region B in that calendar year equals or exceeds US$[…***…]	US$[…***…]
Sales Milestone – Region C		**Sales Milestone Fee**
	The end of the first calendar year in which the aggregate Net Revenue from all Trofinetide Product in Region C in that calendar year equals or exceeds US$[…***…]	US$[…***…]
	The end of the first calendar year in which the aggregate Net Revenue from all Trofinetide Product in Region C in that calendar year equals or exceeds US$[…***…]	US$[…***…]
	The end of the first calendar year in which the aggregate Net Revenue from all Trofinetide Product in Region C in that calendar year equals or exceeds US$[…***…]	US$[…***…]
	The end of the first calendar year in which the aggregate Net Revenue from all Trofinetide Product in Region C in that calendar year equals or exceeds US$[…***…]	US$[…***…]

3.2 NNZ-2591 Product

The Sales Milestone Fees in respect of NNZ-2591 Products are as set out in the following table:

Sales Milestone – Initial Territory		**Sales Milestone Fee**
1	The end of the first calendar year in which the aggregate Net Revenue from all NNZ-2591 Product in the Initial Territory in that calendar year equals or exceeds US$250 million	US$50 million
2	The end of the first calendar year in which the aggregate Net Revenue from all NNZ-2591 Product in the Initial Territory in that calendar year equals or exceeds US$500 million	US$50 million
3	The end of the first calendar year in which the aggregate Net Revenue from all NNZ-2591 Product in the Initial Territory in that calendar year equals or exceeds US$750 million	US$100 million
4	The end of the first calendar year in which the aggregate Net Revenue from all NNZ-2591 Product in the Initial Territory in that calendar year equals or exceeds US$1,000 million	US$150 million
Sales Milestone – Region A		**Sales Milestone Fee**
1	The end of the first calendar year in which the aggregate Net Revenue from all NNZ-2591 Product in Region A in that calendar year equals or exceeds US$[…***…]	US$[…***…]
2	The end of the first calendar year in which the aggregate Net Revenue from all NNZ-2591 Product in Region A in that calendar year equals or exceeds US$[…***…]	US$[…***…]
3	The end of the first calendar year in which the aggregate Net Revenue from all NNZ-2591 Product in Region A in that calendar year equals or exceeds US$[…***…]	US$[…***…]
4	The end of the first calendar year in which the aggregate Net Revenue from all NNZ-2591 Product in Region A in that calendar year equals or exceeds US$[…***…]	US$[…***…]
Sales Milestone – Region B		**Sales Milestone Fee**
	The end of the first calendar year in which the aggregate Net Revenue from all NNZ-2591 Product in Region B in that calendar year equals or exceeds US$[…***…]	US$[…***…]
	The end of the first calendar year in which the aggregate Net Revenue from all NNZ-2591 Product in Region B in that calendar year equals or exceeds US$[…***…]	US$[…***…]
	The end of the first calendar year in which the aggregate Net Revenue from all NNZ-2591 Product in Region B in that calendar year equals or exceeds US$[…***…]	US$[…***…]

	The end of the first calendar year in which the aggregate Net Revenue from all NNZ-2591 Product in Region B in that calendar year equals or exceeds US$[…***…]	US$[…***…]
Sales Milestone – Region C		**Sales Milestone Fee**
	The end of the first calendar year in which the aggregate Net Revenue from all NNZ-2591 Product in Region C in that calendar year equals or exceeds US$[…***…]	US$[…***…]
	The end of the first calendar year in which the aggregate Net Revenue from all NNZ-2591 Product in Region C in that calendar year equals or exceeds US$[…***…]	US$[…***…]
	The end of the first calendar year in which the aggregate Net Revenue from all NNZ-2591 Product in Region C in that calendar year equals or exceeds US$[…***…]	US$[…***…]
	The end of the first calendar year in which the aggregate Net Revenue from all NNZ-2591 Product in Region C in that calendar year equals or exceeds US$[…***…]	US$[…***…]

3.3 Payment of Sales Milestone Fees

(a) The Sales Milestone Fee will be payable within […***…] days of the achievement of the relevant Sales Milestone.

(b) Each Sales Milestone Fee will be payable only once, upon first achievement of that Sales Milestone, regardless of the number of times that Sales Milestone is achieved or the number of Products that achieves it.

(c) For the avoidance of doubt:

(i) if more than one Sales Milestone is reached in any year, the relevant Sales Milestone Fee for each of those Sales Milestones will be payable in accordance with this Agreement; and

(ii) if a Sales Milestone is reached for both Trofinetide Product and NNZ-2591 Product in any year, the relevant Sales Milestone Fee for each of those Products will be payable in accordance with this Agreement.

4 Royalties

4.1 Royalty Payments – Trofinetide Product, Initial Territory

Subject to the royalty reductions set forth in clause 4.3 of this Fee Schedule, and during the applicable Exclusivity Period, ACADIA shall pay to Neuren, on a Quarterly basis, a running royalty on aggregate Net Revenues of all countries in the Initial Territory at the following incremental royalty rates calculated on a country-by-country basis on total Net Revenue of all Trofinetide Product in the Initial Territory in the applicable Quarter:

Aggregate Annual Net Revenue – Initial Territory	Royalty Rate
For the portion of aggregate annual Net Revenue of all Trofinetide Product in the Initial Territory less than or equal to Two Hundred and Fifty Million Dollars (US$250,000,000) (i.e. ≤ US$250,000,000)	Ten Percent (10%)
For the portion of aggregate annual Net Revenue of all Trofinetide Product in the Initial Territory greater than Two Hundred and Fifty Million Dollars (US$250,000,000) but less than or equal to Five Hundred Million Dollars (US$500,000,000) (i.e. > US$250,000,000 but ≤ US$500,000,000)	Twelve Percent (12%)
For the portion of aggregate annual Net Revenue of all Trofinetide Product in the Initial Territory greater than Five Hundred Million Dollars (US$500,000,000) but less than or equal to Seven Hundred and Fifty Million Dollars (US$750,000,000) (i.e. > US$500,000,000 and ≤ US$750,000,000)	Fourteen Percent (14%)
For the portion of aggregate annual Net Revenue of all Trofinetide Product in the Initial Territory greater than Seven Hundred and Fifty Million Dollars (US$750,000,000) (i.e. > US$750,000,000)	Fifteen Percent (15%)

For example, if the Annual Net Revenue for all Trofinetide Product in the Initial Territory is US$3,000,000, comprised of Annual Net Revenue in the United States of US$2,500,000 and US$500,000 in Mexico. If a Generic Product in respect of that Trofinetide Product is sold in Mexico during such Quarter, then the royalty payable pursuant to this clause 4.1 in Mexico would be subject to the 50% royalty reduction set forth in clause 4.3(a). Total royalties payable on total Annual Net Revenues would be US$275,000 calculated as:

(Annual Net Revenue in the United States (US$2,500,000) multiplied by the applicable royalty rate (10%)) plus

(Annual Net Revenue in Mexico (US$500,000) multiplied by the reduced applicable royalty rate (5%) for such country).

4.2 Royalty Payments – Trofinetide Product, New Territory

During the applicable Exclusivity Period, ACADIA shall pay to Neuren, on a Quarterly basis, a running royalty on aggregate Net Revenues for a given Trofinetide Product in each of Region A, Region B and Region C in the Territory at the following incremental royalty rates calculated on a Region-by-Region basis on total Net Revenue of all Trofinetide Product in that Region in the applicable Quarter:

Aggregate Annual Net Revenue – Region A, Region B and Region C in the New Territory	Royalty Rate
For the portion of aggregate annual Net Revenue of all Trofinetide Product in the relevant Region less than or equal to […***…]	Region A: […***…] Percent ([…***…]%) Region B: […***…] Percent ([…***…]%) Region C: […***…] Percent ([…***…]%)

Aggregate Annual Net Revenue – Region A, Region B and Region C in the New Territory	Royalty Rate
For the portion of aggregate annual Net Revenue of all Trofinetide Product in the relevant Region greater than […***…] but less than or equal to […***…]	Region A: […***…] Percent ([…***…]%) Region B: […***…] Percent ([…***…]%) Region C: […***…] Percent ([…***…]%)
For the portion of aggregate annual Net Revenue of all Trofinetide Product in the relevant Region greater than […***…]	Region A: […***…] Percent ([…***…]%) Region B: […***…] Percent ([…***…]%) Region C: […***…] Percent ([…***…]%)

4.3 Royalty Reduction – Trofinetide Product

(a) Generic Entry. The royalty rates set forth in clauses 4.1 of this Fee Schedule that are applied to the Net Revenue of Trofinetide Product in a country shall be reduced by […***…]% if a Generic Product in respect of that Trofinetide Product is sold in such country, beginning in the first Quarter during which such Generic Product is sold in such country.

(b) Third Party Licences. ACADIA shall be responsible for paying the licence fees, royalties, and milestones with respect to Third Party licences for intellectual property that ACADIA reasonably believes are necessary or reasonably useful for the Development, Manufacturing or Commercialization of the Trofinetide Product in the Territory. For such Third Party licences, ACADIA will be entitled to deduct up to […***…]% of all such amounts due to such Third Party from Royalties payable to Neuren pursuant to clauses 4.1 of this Fee Schedule.

4.4 Royalty Payments – NNZ-2591 Product, Initial Territory

Subject to the royalty reductions set forth in clause 4.6 of this Fee Schedule, and during the applicable Exclusivity Period, ACADIA shall pay to Neuren, on a Quarterly basis, a running royalty on aggregate Net Revenues of all countries in the Initial Territory at the following incremental royalty rates calculated on a country-by-country basis on total Net Revenue of all NNZ-2591 Product in the Initial Territory in the applicable Quarter:

Aggregate Annual Net Revenue – Initial Territory	Royalty Rate
For the portion of aggregate annual Net Revenue of all NNZ-2591 Product in the Initial Territory less than or equal to Two Hundred and Fifty Million Dollars (US$250,000,000) (i.e. ≤ US$250,000,000)	Ten Percent (10%)
For the portion of aggregate annual Net Revenue of all NNZ-2591 Product in the Initial Territory greater than Two Hundred and Fifty Million Dollars (US$250,000,000) but less than or equal to Five Hundred Million Dollars (US$500,000,000) (i.e. > US$250,000,000 but ≤ US$500,000,000)	Twelve Percent (12%)

Aggregate Annual Net Revenue – Initial Territory	Royalty Rate
For the portion of aggregate annual Net Revenue of all NNZ-2591 Product in the Initial Territory greater than Five Hundred Million Dollars (US$500,000,000) but less than or equal to Seven Hundred and Fifty Million Dollars (US$750,000,000) (i.e. > US$500,000,000 and ≤ US$750,000,000)	Fourteen Percent (14%)
For the portion of aggregate annual Net Revenue of all NNZ-2591 Product in the Initial Territory greater than Seven Hundred and Fifty Million Dollars (US$750,000,000) (i.e. > US$750,000,000)	Fifteen Percent (15%)

For example, if the Annual Net Revenue for NNZ-2591 Product in the Initial Territory is US$3,000,000, comprised of Annual Net Revenue in the United States of US$2,500,000 and US$500,000 in Mexico. If a Generic Product in respect of that NNZ-2591 Product is sold in Mexico during such Quarter, then the royalty payable pursuant to this clause 4.4 in Mexico would be subject to the 50% royalty reduction set forth in clause 4.3(a). Total royalties payable on total Annual Net Revenues would be US$275,000 calculated as:

(Annual Net Revenue in the United States (US$2,500,000) multiplied by the applicable royalty rate (10%)) plus

(Annual Net Revenue in Mexico (US$500,000) multiplied by the reduced applicable royalty rate (5%) for such country).

4.5 Royalty Payments – NNZ-2591 Product, New Territory

During the applicable Exclusivity Period, ACADIA shall pay to Neuren, on a Quarterly basis, a running royalty on aggregate net revenues for all NNZ-2591 Product in Region A, Region B and Region C in the Territory at the following incremental royalty rates calculated on a Region-by-Region basis on total Net Revenue of all NNZ-2591 Product in that Region in the applicable Quarter:

Aggregate Annual Net Revenue – Region A, Region B and Region C in the New Territory	Royalty Rate
For the portion of aggregate annual Net Revenue of all NNZ-2591 Product in the relevant Region less than or equal to […***…]	Region A: […***…] Percent ([…***…]%) Region B: […***…] Percent ([…***…]%) Region C: […***…] Percent ([…***…]%)
For the portion of aggregate annual Net Revenue of all NNZ-2591 Product in the relevant Region greater than […***…] but less than or equal to […***…]	Region A: […***…] Percent ([…***…]%) Region B: […***…] Percent ([…***…]%) Region C: […***…] Percent ([…***…]%)
For the portion of aggregate annual Net Revenue of all NNZ-2591 Product in the relevant Region greater than […***…]	Region A: […***…] Percent ([…***…]%) Region B: […***…] Percent ([…***…]%) Region C: […***…] Percent ([…***…]%)

4.6 Royalty Reduction – NNZ-2591 Product

(a) Generic Entry. The royalty rates set forth in clauses 4.4 of this Fee Schedule that are applied to the Net Revenue of NNZ-2591 Product in a country shall be reduced by […***…]% if a Generic Product in respect of that NNZ-2591 Product is sold in such country, beginning in the first Quarter during which such Generic Product is sold in such country.

(b) Third Party Licences. ACADIA shall be responsible for paying the licence fees, royalties, and milestones with respect to Third Party licences for intellectual property that ACADIA reasonably believes are necessary or reasonably useful for the Development, Manufacturing or Commercialization of the NNZ-2591 Product in the Territory. For such Third Party licences, ACADIA will be entitled to deduct up to […***…]% of all such amounts due to such Third Party from Royalties payable to Neuren pursuant to clause 4.4 of this Fee Schedule.

5 Sub-Licensee Fee

5.1 Sub-Licensee Fee –in New Territory

If:

(a) ACADIA appoints a Sub-Licensee for any Product in a country or region in the New Territory pursuant to a sub-licence agreement executed during the two year period commencing on the Commencement Date, and

(b) ACADIA receives from the Sub-Licensee any:

(i) upfront fee; or

(ii) pre-launch milestone fee (including any first commercial sale milestone fee),

(collectively, **Relevant Fees**),

ACADIA will pay to Neuren a percentage of the Relevant Fees, as set out in the following table:

When sub-licence agreement is executed	**Neuren percentage of Relevant Fees**
During the 12 month period commencing on the Commencement Date and ending on the day prior to the first anniversary the Commencement Date	[…***…]%
During the 12 month period commencing on the first anniversary of the Commencement Date and ending on the day prior to the second anniversary of the Commencement Date	[…***…]%

5.2 Credit of Sub-Licensee Fee

Any Sub-Licensee Fee paid by ACADIA to Neuren under clause 5.1 in respect of any Product in any country or region of the New Territory will be credited against any Development Milestones, Sales Milestones or Royalty payments payable by ACADIA to Neuren for that Product in that country or region of the New Territory.

Schedule of Patents and Patent Applications

1 Part A –Trofinetide Patents

Territory	Patent number	Title	Filing	Grant date
[…***…]	[…***…]	[…***…]	[…***…]	[…***…]

Territory	Application number	Title	International Filing Date
[…***…]	[…***…]	[…***…]	[…***…]

2 Part B – NNZ-2591 Patents

Territory	Patent number	Title	Filing	Grant date
[…***…]	[…***…]	[…***…]	[…***…]	[…***…]

Territory	Application number	Title	International Filing Date
[…***…]	[…***…]	[…***…]	[…***…]

EXHIBIT A - DEFINITION OF COMPOUND

[...***...]

Signing Page

EXECUTED as an **agreement**

EXECUTED by **NEUREN PHARMACEUTICALS LIMITED** by its duly authorised signatory:)
)
)

/s/ Jon Pilcher
Signature of authorised signatory

Jon Pilcher
Full name of authorised signatory (print)

EXECUTED by **ACADIA PHARMACEUTICALS INC.** by its duly authorised signatory:)
)
)

/s/ Steve Davis
Signature of authorised signatory

Steve Davis
Full name of authorised signatory (print)

Exhibit 31.1

CERTIFICATION
Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, Stephen R. Davis, certify that:

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

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

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

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

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

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

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

d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter 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: August 2, 2023

/s/ Stephen R. Davis

Stephen R. Davis
Chief Executive Officer
(Registrant's Principal Executive Officer)

Exhibit 31.2

CERTIFICATION
Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, Mark C. Schneyer, certify that:

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

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

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

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

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

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

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

d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter 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: August 2, 2023

/S/ MARK C. SCHNEYER

Mark C. Schneyer
Executive Vice President and Chief Financial Officer
(Registrant's Principal Financial Officer)

Exhibit 32.1

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

In connection with the quarterly report of Acadia Pharmaceuticals Inc. (the "Company") on Form 10-Q for the quarterly period ended June 30, 2023, as filed with the Securities and Exchange Commission on or about the date hereof (the "Report"), I, Stephen R. Davis, Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. §1350, as adopted pursuant to §906 of the Sarbanes-Oxley Act of 2002, that to the best of my knowledge:

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

(2) the information contained in the Report fairly presents, in all material respects, the financial condition of the Company at the end of the period covered by the Report and results of operations of the Company for the period covered by the Report.

Date: August 2, 2023

/s/ Stephen R. Davis

Stephen R. Davis
Chief Executive Officer
(Registrant's Principal Executive Officer)

This certification shall not be deemed "filed" for purposes of Section 18 of the Exchange Act or otherwise subject to the liability of Section 18 of the Exchange Act. Such certification shall not be deemed to be incorporated by reference into any filing under the Securities Act of 1933, as amended, or the Exchange Act, except to the extent that the Company specifically incorporates it by reference.

Exhibit 32.2

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

In connection with the quarterly report of Acadia Pharmaceuticals Inc. (the "Company") on Form 10-Q for the quarterly period ended June 30, 2023, as filed with the Securities and Exchange Commission on or about the date hereof (the "Report"), I, Mark C. Schneyer, Executive Vice President and Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. §1350, as adopted pursuant to §906 of the Sarbanes-Oxley Act of 2002, that to the best of my knowledge:

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

(2) the information contained in the Report fairly presents, in all material respects, the financial condition of the Company at the end of the period covered by the Report and results of operations of the Company for the period covered by the Report.

Date: August 2, 2023

/S/ MARK C. SCHNEYER

Mark C. Schneyer
Executive Vice President and Chief Financial Officer
(Registrant's Principal Financial Officer)

This certification shall not be deemed "filed" for purposes of Section 18 of the Exchange Act or otherwise subject to the liability of Section 18 of the Exchange Act. Such certification shall not be deemed to be incorporated by reference into any filing under the Securities Act of 1933, as amended, or the Exchange Act, except to the extent that the Company specifically incorporates it by reference.