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

FORM 10-Q

(Mark One)

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

For the quarterly period ended September 30, 2023

OR

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

For the transition period from _____ to _____

Commission file number 000-30171

SANGAMO THERAPEUTICS, INC.
(Exact name of registrant as specified in its charter)

Delaware	**68-0359556**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**

7000 Marina Blvd., Brisbane, California, 94005
(Address of principal executive offices) (Zip Code)

(510) 970-6000
(Registrant's telephone number, including area code)

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.01 per share	SGMO	Nasdaq Global Select Market

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

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

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

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

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

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

As of October 30, 2023, 177,346,980 shares of the issuer's common stock, par value $0.01 per share, were outstanding.

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SANGAMO THERAPEUTICS, INC.

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Unless otherwise indicated or the context suggests otherwise, references in this Quarterly Report on Form 10-Q, or Quarterly Report, to "Sangamo," "the Company," "we," "us," and "our" refer to Sangamo Therapeutics, Inc. and our subsidiaries, including Sangamo Therapeutics France S.A.S. and Sangamo Therapeutics UK Ltd.

Any third-party trade names, trademarks and service marks appearing in this Quarterly Report are the property of their respective holders.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

Some statements contained in this report are "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. These statements relate to our future events, including our anticipated operations, research, development, manufacturing and commercialization activities, clinical trials, operating results and financial condition. These forward-looking statements involve known and unknown risks, uncertainties and other factors that may cause our actual results, performance or achievements to be materially different from any future results, performances or achievements expressed or implied by the forward-looking statements. Forward-looking statements may include, but are not limited to, statements about:

- our strategy;
- anticipated research and development of product candidates and potential commercialization of any resulting approved products;
- the initiation, scope, rate of progress, enrollment, dosing, anticipated results and timing of our preclinical studies and clinical trials and those of our collaborators or strategic partners;
- the therapeutic and commercial potential of our product candidates, including the durability of therapeutic effects;
- the therapeutic and commercial potential of technologies used by us in our product candidates, including our gene therapy and cell therapy technologies, zinc finger, or ZF, technology platform, zinc finger nucleases, or ZF nucleases, and zinc finger transcriptional regulators, or ZF-TRs, which include zinc finger repressors, or ZF-Rs, and zinc finger activators, or ZF-As;
- our ability to establish and maintain collaborations and strategic partnerships and realize the expected benefits of such arrangements, including our ability to find potential new collaboration partners for programs that were previously the subject of collaboration agreements as well as for our Fabry disease gene therapy and CAR-Treg cell therapy programs;
- anticipated revenues from existing and new collaborations and the timing thereof;
- our estimates regarding the impact of the macroeconomic environment on our business and operations and the business and operations of our collaborators, including clinical trials and manufacturing, and our ability to manage such impacts;
- our research and development and other expenses;
- our ability to obtain adequate preclinical and clinical supplies of our product candidates from current and potential new suppliers and manufacturers or from our own in-house manufacturing facilities;
- the ability of Sangamo and our collaborators and strategic partners to obtain and maintain regulatory approvals for product candidates and the timing and costs associated with obtaining regulatory approvals;
- our ability to comply with, and the impact of, regulatory requirements, obligations and restrictions on our business and operations;
- our ability to protect our intellectual property and operate our business without infringing upon the intellectual property rights of others, including our ability to obtain and maintain rights to the technologies required to develop and commercialize our product candidates;
- competitive developments, including the impact on our competitive position of rival products and product candidates and our ability to meet such competition;
- our strategic pipeline prioritization, including plans for advancing our preclinical programs, and the expected charges and cost savings associated with our restructurings and any future cost reduction measures;
- our estimates regarding the sufficiency of our cash resources and our expenses, capital requirements and need for substantial additional financing, and our ability to obtain additional financing;
- our ability to continue to operate as a going concern, including our estimate that our available cash, cash equivalents and marketable securities as of September 30, 2023, in combination with the cost savings expected from the restructuring, workforce reduction and other potential cost reductions, will be sufficient to fund our planned operations into the third quarter of 2024;
- our projected operating and financial performance;
- our operational and legal risks; and

- our plans, objectives, expectations and intentions and any other statements that are not historical facts.

In some cases, you can identify forward-looking statements by use of future dates or by terms such as: “anticipates,” “believes,” “continues,” “could,” “estimates,” “expects,” “intends,” “may,” “plans,” “seeks,” “should,” “will” and similar expressions intended to identify forward-looking statements. These statements reflect our current views with respect to future events, are based on assumptions and involve known and unknown risks, uncertainties and other factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements. These risks and uncertainties include, without limitation:

- There is substantial doubt about our ability to continue to operate as a going concern. We need substantial additional funding to execute our operating plan and to continue to operate as a going concern. We estimate that our available cash, cash equivalents and marketable securities as of September 30, 2023, in combination with the cost savings expected from the restructuring, workforce reduction and other potential cost reductions, will be sufficient to fund our planned operations only into the third quarter of 2024. If adequate funds are not available to us on a timely basis, or at all, we will be required to take additional actions to address our liquidity needs, including additional cost reduction measures such as further reducing operating expenses and delaying, reducing the scope of, discontinuing or altering our research and development activities, which would have a material adverse effect on our business and prospects, or we may be required to cease operations entirely, liquidate all or a portion of our assets, and/or or seek protection under applicable bankruptcy laws, and you may lose all or part of your investment. Future sales and issuances of equity securities would also result in substantial dilution to our stockholders.
- We are a clinical-stage biotechnology company with no approved products or product revenues. Our success depends substantially on clinical trial results demonstrating safety, efficacy and durability of our product candidates to the satisfaction of regulatory authorities. Obtaining positive clinical trial results and regulatory approvals is expensive, lengthy, challenging and unpredictable and may never occur for any product candidates.
- We are early in our research and development efforts for our core preclinical neurology programs that are the current focus, all of which are still in preclinical development. We may encounter difficulties in advancing product candidates from research programs to preclinical and clinical development.
- Success in research and preclinical studies or early clinical trial results may not be indicative of results obtained in later trials. Likewise, preliminary, initial or interim data from clinical trials may be materially different from final data.
- Many of our product candidates are based on novel ZF technologies that have yet to yield any approved commercially viable therapeutic products.
- We have historically incurred significant operating losses since inception and anticipate continued losses for the foreseeable future. We may never become profitable.
- We rely heavily on collaborations with biopharmaceutical companies to generate revenues and develop, obtain regulatory approvals for and commercialize some of our product candidates. If conflicts arise with our collaborators or if the collaborations terminate for any reason, our revenues and product development efforts would be negatively impacted.
- Biotechnology and genomic medicine are highly competitive businesses. Our competitors may develop rival technologies and products that are superior to or are commercialized more quickly than our technologies and product candidates.
- Manufacturing genomic medicines is complex, expensive, highly regulated and risky. We are currently substantially reliant on third-party manufacturers. Manufacturing challenges may result in unexpected costs, supply interruptions and harm and delay to our product development efforts.
- Even if we obtain regulatory approvals for our product candidates, our approved products may not gain market acceptance among physicians and patients and adequate coverage and reimbursement from third-party payors and may not demonstrate commercial viability.
- We may not be able to obtain, maintain and enforce necessary and desirable intellectual property protections for our technologies and product candidates in all desired jurisdictions, which could adversely affect the value of our technologies and our product development efforts and could increase the risks of costly, lengthy and distracting litigation with unpredictable results.
- Third parties, who may or may not be competitors, may allege that we are infringing, misappropriating, or otherwise practicing in an unauthorized manner their patents or other proprietary rights. Such allegations may result in infringement actions, other misappropriation actions or threats of such actions, all of which could increase the risks of costly, lengthy and distracting litigation with unpredictable results.

- Our success depends on hiring, integrating and retaining additional highly qualified skilled employees and retaining current key executives and employees, which may be challenging given the uncertainty regarding our ability to obtain sufficient additional funding and to continue to operate as a going concern as well as the competition among numerous biopharmaceutical companies and academic institutions for individuals with these skills.
- Unfavorable global economic conditions could have a negative impact on our operations, which could materially and adversely affect our ability to continue to operate as a going concern and otherwise have a material adverse effect on our business, financial condition, results of operations, prospects and market price of our common stock.
- The market price of our common stock has been and will likely continue to be volatile, and you could lose all or part of any investment in our common stock.
- We have fully impaired our goodwill and indefinite-lived intangible assets, have recorded significant impairment of our right-of-use and other long-lived assets, and may be required to record in the future significant additional charges if our long-lived assets become further impaired.
- We currently do not meet, and may not regain compliance with, the listing standards of the Nasdaq Stock Market LLC, and as a result our common stock may be delisted. Delisting could adversely affect the liquidity of our common stock and the market price of our common stock could decrease, and our ability to obtain sufficient additional capital to fund our operations and to continue to operate as a going concern would be substantially impaired.
- Our recent restructurings may not result in anticipated savings or operational efficiencies, could result in total costs and expenses that are greater than expected and could disrupt our business.

Additional discussion of the risks, uncertainties and other factors described above, as well as other risks and uncertainties material to our business, can be found under “Risk Factors” in Part I, Item 1A of our Annual Report on Form 10-K for the year ended December 31, 2022 as filed with the Securities and Exchange Commission on February 23, 2023, as supplemented by the risks described under “Risk Factors” in Part II, Item 1A of this Quarterly Report on Form 10-Q, and we encourage you to refer to that additional discussion. Given these risks, uncertainties and other factors, you should not place undue reliance on these forward-looking statements. Also, these forward-looking statements represent our plans, objectives, estimates, expectations and intentions only as of the date of this filing. You should read this report completely and with the understanding that our actual future results and the timing of events may be materially different from what we expect, and we cannot otherwise guarantee that any forward-looking statement will be realized. We hereby qualify all of our forward-looking statements by these cautionary statements.

Except as required by law, we undertake no obligation to update or supplement any forward-looking statements publicly, or to update or supplement the reasons that actual results could differ materially from those anticipated in these forward-looking statements, even if new information becomes available in the future. You are advised, however, to consult any further disclosures we make on related subjects.

This report includes discussion of certain clinical studies and trials relating to various product candidates. These studies typically are part of a larger body of clinical data relating to such product candidates, and the discussion herein should be considered in the context of the larger body of data. In addition, clinical data are subject to differing interpretations, and even if we view data as sufficient to support the safety and/or effectiveness of a product candidate, regulatory authorities may not share our views and may require additional data or may deny approval altogether.

PART I. FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

SANGAMO THERAPEUTICS, INC.

CONDENSED CONSOLIDATED BALANCE SHEETS

(Unaudited; in thousands)

	September 30, 2023	December 31, 2022
ASSETS		
Current assets:		
Cash and cash equivalents	$ 56,514	$ 100,444
Marketable securities	75,597	177,188
Interest receivable	602	794
Accounts receivable	1,148	3,678
Prepaid expenses and other current assets	13,715	18,223
Total current assets	147,576	300,327
Marketable securities, non-current	—	29,845
Property and equipment, net	28,436	63,531
Intangible assets	—	50,729
Goodwill	—	37,552
Operating lease right-of-use assets	27,211	62,002
Other non-current assets	14,974	17,023
Restricted cash	1,500	1,500
Total assets	$ 219,697	$ 562,509
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 15,457	$ 22,418
Accrued compensation and employee benefits	17,306	21,506
Other accrued liabilities	14,234	16,007
Deferred revenues	1,485	51,780
Total current liabilities	48,482	111,711
Deferred revenues, non-current	—	109,377
Long-term portion of lease liabilities	34,975	38,986
Deferred income tax	—	6,270
Other non-current liabilities	1,318	1,207
Total liabilities	84,775	267,551
Commitments and contingencies		
Stockholders' equity:		
Preferred stock	—	—
Common stock	1,773	1,668
Additional paid-in capital	1,485,811	1,450,239
Accumulated deficit	(1,346,081)	(1,148,545)
Accumulated other comprehensive loss	(6,581)	(8,404)
Total stockholders' equity	134,922	294,958
Total liabilities and stockholders' equity	$ 219,697	$ 562,509

See accompanying Notes to Condensed Consolidated Financial Statements.

SANGAMO THERAPEUTICS, INC.

CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(Unaudited; in thousands, except per share amounts)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Revenues	$ 9,398	$ 26,460	$ 174,190	$ 84,069
Operating expenses:				
Research and development	57,089	65,116	183,351	183,719
General and administrative	13,918	16,238	48,068	46,239
Impairment of goodwill and indefinite-lived intangible assets	—	—	89,485	—
Impairment of long-lived assets	44,799	—	65,232	—
Total operating expenses	115,806	81,354	386,136	229,958
Loss from operations	(106,408)	(54,894)	(211,946)	(145,889)
Interest and other income, net	3,515	1,769	9,610	5,754
Loss before income taxes	(102,893)	(53,125)	(202,336)	(140,135)
Income tax expense (benefit)	1,270	30	(4,800)	170
Net loss	$ (104,163)	$ (53,155)	$ (197,536)	$ (140,305)
Basic and diluted net loss per share	$ (0.59)	$ (0.34)	$ (1.14)	$ (0.93)
Shares used in computing basic and diluted net loss per share	177,171	158,042	173,375	150,850

See accompanying Notes to Condensed Consolidated Financial Statements.

SANGAMO THERAPEUTICS, INC.

CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(Unaudited; in thousands)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Net loss	$ (104,163)	$ (53,155)	$ (197,536)	$ (140,305)
Foreign currency translation adjustment	(1,144)	(6,028)	981	(14,040)
Net pension gain	5	55	2	130
Unrealized gain (loss) on marketable securities, net of tax	494	135	840	(1,101)
Comprehensive loss	$ (104,808)	$ (58,993)	$ (195,713)	$ (155,316)

See accompanying Notes to Condensed Consolidated Financial Statements.

SANGAMO THERAPEUTICS, INC.

CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(Unaudited; in thousands, except share amounts)

	Three Months Ended September 30, 2023					
	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive (Loss) Income	Total Stockholders' Equity
	Shares	Amount				
Balances at June 30, 2023	177,074,546	$ 1,771	$ 1,479,725	$ (1,241,918)	$ (5,936)	$ 233,642
Issuance of common stock upon exercise of stock options and vesting of restricted stock units, net of tax	205,129	2	(103)	—	—	(101)
Stock-based compensation	—	—	6,189	—	—	6,189
Foreign currency translation adjustment	—	—	—	—	(1,144)	(1,144)
Net pension gain	—	—	—	—	5	5
Net unrealized gain on marketable securities, net of tax	—	—	—	—	494	494
Net loss	—	—	—	(104,163)	—	(104,163)
Balances at September 30, 2023	177,279,675	$ 1,773	$ 1,485,811	$ (1,346,081)	$ (6,581)	$ 134,922

	Nine Months Ended September 30, 2023					
	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive (Loss) Income	Total Stockholders' Equity
	Shares	Amount				
Balances at December 31, 2022	166,793,320	$ 1,668	$ 1,450,239	$ (1,148,545)	$ (8,404)	$ 294,958
Issuance of common stock in at-the-market offering, net of offering expenses	8,249,261	83	15,023	—	—	15,106
Issuance of common stock upon exercise of stock options and vesting of restricted stock units, net of tax	1,481,508	15	(1,419)	—	—	(1,404)
Issuance of common stock under employee stock purchase plan	755,586	7	712	—	—	719
Stock-based compensation	—	—	21,256	—	—	21,256
Foreign currency translation adjustment	—	—	—	—	981	981
Net pension gain	—	—	—	—	2	2
Net unrealized gain on marketable securities, net of tax	—	—	—	—	840	840
Net loss	—	—	—	(197,536)	—	(197,536)
Balances at September 30, 2023	177,279,675	$ 1,773	$ 1,485,811	$ (1,346,081)	$ (6,581)	$ 134,922

SANGAMO THERAPEUTICS, INC.

CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(Unaudited; in thousands, except share amounts)

	Three Months Ended September 30, 2022					
	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive (Loss) Income	Total Stockholders' Equity
	Shares	Amount				
Balances at June 30, 2022	153,352,502	$ 1,534	$ 1,373,324	$ (1,043,417)	$ (13,160)	$ 318,281
Issuance of common stock in at-the-market offering, net of offering expenses	8,483,104	85	42,089	—	—	42,174
Issuance of common stock upon exercise of stock options and vesting of restricted stock units, net of tax	82,617	—	(101)	—	—	(101)
Stock-based compensation	—	—	7,793	—	—	7,793
Foreign currency translation adjustment	—	—	—	—	(6,028)	(6,028)
Net pension gain	—	—	—	—	55	55
Net unrealized gain on marketable securities, net of tax	—	—	—	—	135	135
Net loss	—	—	—	(53,155)	—	(53,155)
Balances at September 30, 2022	161,918,223	$ 1,619	$ 1,423,105	$ (1,096,572)	$ (18,998)	$ 309,154

	Nine Months Ended September 30, 2022					
	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive (Loss) Income	Total Stockholders' Equity
	Shares	Amount				
Balances at December 31, 2021	145,921,530	$ 1,459	$ 1,334,138	$ (956,267)	$ (3,987)	$ 375,343
Issuance of common stock in at-the-market offering, net of offering expenses	14,711,770	147	66,301	—	—	66,448
Issuance of common stock upon exercise of stock options and vesting of restricted stock units, net of tax	925,455	9	(1,847)	—	—	(1,838)
Issuance of common stock under employee stock purchase plan	359,468	4	1,111	—	—	1,115
Stock-based compensation	—	—	23,402	—	—	23,402
Foreign currency translation adjustment	—	—	—	—	(14,040)	(14,040)
Net pension gain	—	—	—	—	130	130
Net unrealized loss on marketable securities, net of tax	—	—	—	—	(1,101)	(1,101)
Net loss	—	—	—	(140,305)	—	(140,305)
Balances at September 30, 2022	161,918,223	$ 1,619	$ 1,423,105	$ (1,096,572)	$ (18,998)	$ 309,154

See accompanying Notes to Condensed Consolidated Financial Statements.

SANGAMO THERAPEUTICS, INC.

CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited; in thousands)

	Nine Months Ended September 30,	
	2023	2022
Operating Activities:		
Net loss	$ (197,536)	$ (140,305)
Adjustments to reconcile net loss to net cash used in operating activities:		
Impairment of goodwill and indefinite-lived intangible assets	89,485	—
Impairment of long-lived assets	65,232	—
Depreciation and amortization	13,238	8,765
Accretion of discounts and impairment on marketable securities	(2,031)	(324)
Amortization in operating lease right-of-use assets	5,945	6,357
Deferred income tax benefit	(6,195)	—
Stock-based compensation	21,256	23,402
Other non-cash adjustments	1,119	—
Net changes in operating assets and liabilities:		
Interest receivable	192	(175)
Accounts receivable	2,530	1,491
Prepaid expenses and other assets	5,159	(5,848)
Accounts payable and other accrued liabilities	(5,220)	9,443
Accrued compensation and employee benefits	(4,182)	(1,225)
Deferred revenues	(159,671)	(64,956)
Lease liabilities	(3,737)	(3,298)
Other non-current liabilities	112	95
Net cash used in operating activities	(174,304)	(166,578)
Investing Activities:		
Purchases of marketable securities	(59,551)	(225,621)
Maturities of marketable securities	193,858	254,990
Purchases of property and equipment	(18,484)	(12,697)
Net cash provided by investing activities	115,823	16,672
Financing Activities:		
Proceeds from at-the-market offering, net of offering expenses	15,106	65,848
Taxes paid related to net share settlement of equity awards	(1,404)	(1,962)
Proceeds from exercise of stock options	—	124
Proceeds from issuance of common stock under employee stock purchase plan	719	1,115
Net cash provided by financing activities	14,421	65,125
Effect of exchange rate changes on cash, cash equivalents, and restricted cash	130	479
Net decrease in cash, cash equivalents, and restricted cash	(43,930)	(84,302)
Cash, cash equivalents, and restricted cash, beginning of period	101,944	180,372
Cash, cash equivalents, and restricted cash, end of period	$ 58,014	$ 96,070
Supplemental cash flow disclosures:		
Property and equipment included in unpaid liabilities	$ 2,757	$ 3,927
Tenant improvement allowance included in contra-lease liability	$ —	$ 1,531

See accompanying Notes to Condensed Consolidated Financial Statements.

SANGAMO THERAPEUTICS, INC.

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

NOTE 1—ORGANIZATION, BASIS OF PRESENTATION AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Organization and Description of Business

Sangamo Therapeutics, Inc. ("Sangamo" or "the Company") was incorporated in the State of Delaware in June 1995 and changed its name from Sangamo Biosciences, Inc. in January 2017. Sangamo is a clinical-stage genomic medicine company committed to translating ground-breaking science into medicines that transform the lives of patients with serious diseases.

Basis of Presentation

The accompanying unaudited Condensed Consolidated Financial Statements have been prepared in accordance with generally accepted accounting principles in the United States of America ("U.S. GAAP") for interim financial information and pursuant to the rules and regulations of the Securities and Exchange Commission ("SEC"). Accordingly, they do not include all of the information and footnotes required by U.S. GAAP for complete financial statements. In the opinion of management, all adjustments (consisting only of normal recurring adjustments) considered necessary for a fair presentation of these financial statements for the periods presented have been included. Operating results for the three and nine months ended September 30, 2023 are not necessarily indicative of the results that may be expected for the year ending December 31, 2023. The Condensed Consolidated Balance Sheet data at December 31, 2022 was derived from the audited Consolidated Financial Statements included in Sangamo's Annual Report on Form 10-K for the year ended December 31, 2022 (the "2022 Annual Report") as filed with the SEC on February 23, 2023.

The accompanying Condensed Consolidated Financial Statements include the accounts of the Company and its subsidiaries. All intercompany balances and transactions have been eliminated in the Condensed Consolidated Financial Statements.

The accompanying Condensed Consolidated Financial Statements and related financial information should be read together with the audited Consolidated Financial Statements and footnotes for the year ended December 31, 2022, included in the 2022 Annual Report.

Liquidity, Going Concern, and Capital Resources

Sangamo is currently working on a number of long-term development projects that involve experimental technologies. The projects will require several years and substantial expenditures to complete and ultimately may be unsuccessful. In recent years, the Company's operations have been funded primarily through collaborations and strategic partnerships, research grants and from the issuance of equity securities. As of September 30, 2023, the Company had capital resources of $132.1 million consisting of cash, cash equivalents, and marketable securities.

Under Accounting Standard Codification Topic 205-40, *Presentation of Financial Statements—Going Concern* ("ASC Topic 205-40"), the Company has the responsibility to evaluate whether conditions and/or events raise substantial doubt about its ability to meet its future financial obligations as they become due within one year after the date that the Condensed Consolidated Financial Statements are issued. As required under ASC Topic 205-40, management's evaluation should initially not take into consideration the potential mitigating effects of management's plans that have not been fully implemented as of the date the Condensed Consolidated Financial Statements are issued. When substantial doubt exists, management evaluates whether the mitigating effects of its plans sufficiently alleviates the substantial doubt about the Company's ability to continue as a going concern. The mitigating effects of management's plans, however, are only considered if both (i) it is probable that the plans will be effectively implemented within one year after the date that the financial statements are issued, and (ii) it is probable that the plans, when implemented, will mitigate the relevant conditions or events that raise substantial doubt about the entity's ability to continue as a going concern within one year after the date that the financial statements are issued. Generally, to be considered probable of being effectively implemented, the plans must have been approved by the Company's board of directors before the date that the financial statements are issued.

The Company's history of significant losses, its negative cash flows from operations, its limited liquidity resources currently on hand, and its dependence on additional financing to fund its operations after the current resources are exhausted raise substantial doubt about its ability to continue to operate as a going concern within one year after the date that the Condensed Consolidated Financial Statements are issued. The Company's current operating plan, its cash, cash equivalents, and marketable

securities as of September 30, 2023 are expected to allow the Company to meet its liquidity requirements only into the third quarter of 2024, which is less than one year following the date these Condensed Consolidated Financial Statements are issued.

Successful completion of the Company's development programs and, ultimately, the attainment of profitable operations are dependent upon future events, including obtaining adequate financing to support the Company's cost structure and operating plan. Management's plans include, among other things, pursuing one or more of the following steps to raise additional capital and reduce costs, none of which can be guaranteed or are entirely within the Company's control:

- raise funding through the sale of the Company's common stock;
- raise funding through debt or royalty financing; and
- establish collaborations with potential partners to advance the Company's product pipeline.

If the Company is unable to raise capital on acceptable terms, or at all, or if it is unable to procure collaboration arrangements or external direct investments to advance its programs, the Company would be required to discontinue some or all of its operations or develop and implement a plan to further extend payables, reduce overhead or scale back its current operating plan until sufficient additional capital is raised to support further operations. There can be no assurance that such a plan would be successful. Additional capital may not be available to the Company on a timely basis, on terms that are acceptable or at all. In particular, the perception of the Company's ability to continue to operate as a going concern may make it more difficult to obtain financing for the continuation of its operations, particularly in light of currently challenging macroeconomic and market conditions. Further, the Company may be unable to attract new investments as a result of the speculative nature of its newly reprioritized core neurology preclinical programs. If adequate funds are not available to the Company on a timely basis, or at all, the Company will be required to take additional actions to address its liquidity needs, including additional cost reduction measures such as further reducing operating expenses and delaying, reducing the scope of, discontinuing or altering its research and development activities, which would have a material adverse effect on its business and prospects, or the Company may be required to cease operations entirely, liquidate all or a portion of its assets, and/or or seek protection under applicable bankruptcy laws.

The accompanying Condensed Consolidated Financial Statements have been prepared assuming the Company will continue to operate as a going concern, which contemplates the realization of assets and the settlement of liabilities in the normal course of business. The Condensed Consolidated Financial Statements do not include any adjustments to reflect the possible future effects on the recoverability and classification of assets or the amounts of liabilities that may result from uncertainty related to the Company's ability to continue as a going concern.

Summary of Significant Accounting Policies

Use of Estimates

The preparation of Condensed Consolidated Financial Statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the amounts reported in the Condensed Consolidated Financial Statements and the accompanying notes. On an ongoing basis, management evaluates its estimates including critical accounting policies or estimates related to revenue recognition, clinical trial accruals, income taxes, fair value of assets and liabilities, including from acquisitions, useful lives and impairment of long-lived assets, and stock-based compensation. Estimates are based on historical experience and on various other market specific and other relevant assumptions that the Company believes to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results could differ from those estimates.

In March 2023, the Company recorded additional revenue related to a change in estimate in connection with the collaboration agreement with Kite Pharma, Inc., a Gilead Sciences, Inc. subsidiary ("Kite"). This adjustment was driven by a reduction in the estimated future level of the Company's research and development services and as a result, future project costs. This resulted in an increase in proportional cumulative performance on this collaboration and an increase in revenue of $8.9 million, a decrease in net loss of $8.9 million, and a decrease in the Company's basic and diluted net loss per share of $0.05 for the nine months ended September 30, 2023.

In September 2023, the Company recorded additional revenue related to a change in estimate in connection with the collaboration agreement with Kite. This adjustment was driven by a further reduction in the estimated future level of the Company's research and development services and as a result, future project costs. This resulted in an increase in proportional cumulative performance on this collaboration and increased revenue by $4.9 million, decreased net loss by $4.9 million, and decreased the Company's basic and diluted net loss per share by $0.03 for the three and nine months ended September 30, 2023.

Revenue Recognition

The Company accounts for its revenues pursuant to the provisions of Accounting Standards Codification Topic 606, *Revenue from Contracts with Customers* ("ASC Topic 606"). The Company's contract revenues are derived from collaboration agreements including licensing arrangements and research services. Research and licensing agreements typically include nonrefundable upfront signing or license fees, payments at negotiated rates for time incurred by Company researchers, third-party cost reimbursements, additional target selection fees, sublicense fees, milestone payments tied to ongoing development and product commercialization, and royalties on future licensees' product sales. All funds received from the Company's collaboration partners are generally not refundable. Non-refundable upfront fees are fixed at the commencement of the contract. All other fees represent variable consideration in contracts. One of the Company's contracts also contains a provision where the Company reimburses its customer for certain costs they incur which is accounted for as a reduction to the contract transaction price as the Company does not acquire any distinct goods or services in exchange for such payments. Deferred revenue primarily represents the portion of nonrefundable upfront fees or milestone payments received but not earned.

In determining the appropriate amount of revenue to be recognized as the Company fulfills its obligations under its agreements, the Company performs the following steps: (i) identification of the promised goods or services in the contract; (ii) determination of whether the promised goods or services are performance obligations, including whether they are distinct in the context of the contract; (iii) measurement of the transaction price, including the constraint on variable consideration; (iv) allocation of the transaction price to the performance obligations based on estimated selling prices; and (v) recognition of revenue when (or as) the Company satisfies each performance obligation.

Most of the Company's performance obligations in its collaboration agreements represent distinct bundles of licenses of intellectual property and research and development services, with these components being individually non-distinct. Options to license the Company's intellectual property and/or acquire research and development services also represent performance obligations when they grant customers a material right, e.g., a right to a discount the customer would not have received if they did not purchase the Company's services under the existing contract.

Revenues from bundles of licenses of intellectual property and research and development services are recognized over time using a proportional performance method. Under this method, revenue is recognized by measuring progress towards satisfaction of the relevant performance obligation using a measure that best depicts the progress towards satisfaction of the relevant performance obligation. For most of the Company's agreements the measure of progress is an input measure based on a level of effort incurred, which includes the value of actual time by Company researchers plus third-party cost reimbursements.

Consideration allocated to options that include material rights is deferred until the options are exercised or expire. The exercise of such options is accounted for as contract continuation, with target selection fees and estimated variable consideration included in the transaction price at that time and allocated specifically to the respective target's performance obligation.

Significant management judgment is required to determine the level of effort required under an arrangement, and the period over which the Company expects to complete its performance obligations under the arrangement. Changes in these estimates can have a material effect on revenue recognized. If the Company cannot reasonably estimate when its performance obligations either are completed or become inconsequential, then revenue recognition is deferred until the Company can reasonably make such estimates. For variable consideration, the amount included in the transaction price is constrained to the amount for which it is probable that a significant reversal of cumulative revenue recognized will not occur. At the end of each subsequent reporting period, the Company re-evaluates the estimated variable consideration included in the transaction price and any related constraint and, if necessary, adjusts its estimate of the overall transaction price. A cumulative catch-up is then recorded in the current period to reflect the updated transaction price and the updated measure of progress. The estimated period of performance and level of effort, including the value of Company researchers' time and third-party costs, are reviewed quarterly and adjusted, as needed, to reflect the Company's current expectations.

As part of the accounting for these arrangements, the Company must develop assumptions that require judgment to determine the stand-alone selling price of each performance obligation identified in the contract. The Company uses key assumptions to determine the stand-alone selling price, which may include forecasted revenues, development timelines, discount rates and probabilities of exercise of technical and regulatory success, and the expected level of effort for research and development services.

Contract modifications occur when the price and/or scope of an arrangement changes. If the modification consists of adding new distinct goods or services in exchange for consideration that reflects standalone selling prices of these goods and services, the modification is accounted for as a separate contract with the customer. Otherwise, if the remaining goods and services are distinct from those previously provided, the existing contract is considered terminated, and the remaining consideration is allocated to the remaining goods and services as if this was a newly signed contract. If the remaining goods and services are not distinct from those previously provided, the effects of the modification are accounted for in a manner similar to the effect of a change in the estimated measure of progress, with cumulative catch-up in revenue recorded at the time of the

modification. If some of the remaining goods and services are distinct from those previously provided and others are not, to account for the effects of the modification the Company applies principles consistent with the objectives of the modification accounting.

Revenues from collaboration and licensing agreements as a percentage of total revenues were as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Kite Pharma, Inc.	58 %	26 %	11 %	23 %
Biogen MA, Inc.	4 %	36 %	77 %	36 %
Novartis Institutes for BioMedical Research, Inc.	— %	36 %	7 %	35 %
Other licensing agreements	38 %	2 %	5 %	6 %

Impairment of Goodwill, Indefinite-lived Intangible Assets and Long-lived Assets

Goodwill represents the excess of consideration transferred over the fair values of assets acquired and liabilities assumed in a business combination. Intangible assets with indefinite useful lives are related to acquired in-process research and development ("IPR&D") projects and are initially measured at their respective fair values as of the acquisition date. Goodwill and indefinite-lived intangible assets are not amortized. Intangible assets related to IPR&D projects are considered to be indefinite-lived until the completion or abandonment of the associated research and development efforts. If and when development is complete, which generally occurs if and when regulatory approval to market a product is obtained, the associated assets would be deemed finite-lived and would then be amortized based on their respective estimated useful lives at that point in time.

Goodwill and indefinite-lived intangible assets are assessed for impairment on an annual basis and whenever events and circumstances indicate that these assets may be impaired. The Company evaluates the carrying value of long-lived assets, which include property and equipment, leasehold improvements and right-of-use assets, for impairment whenever events or changes in circumstances indicate that the carrying amounts of the asset may not be fully recoverable.

In testing for goodwill impairment, the Company has the option of first performing a qualitative assessment to determine whether it is more likely than not that the fair value of the reporting unit is less than its carrying amount. If the Company elects to bypass the qualitative assessment, or if a qualitative assessment indicates it is more likely than not that the carrying value exceeds its fair value, the Company performs a quantitative goodwill impairment test to compare the fair value of its reporting unit to its carrying value, including goodwill. If the carrying value, including goodwill, exceeds the reporting unit's fair value, the Company will recognize an impairment loss for the amount by which the carrying amount exceeds the reporting unit's fair value (but not in excess of the carrying value of goodwill).

In performing each annual impairment assessment and any interim impairment assessment for its indefinite-lived intangible assets, the Company determines if it should qualitatively assess whether it is more likely than not the fair value of its IPR&D asset is less than its carrying amount (the qualitative impairment test). If the Company concludes that is the case, or elects not to use the qualitative impairment test, the Company will proceed with quantitatively determining the fair value of the IPR&D asset and comparing its fair value to its carrying value to determine the amount of impairment, if any (the quantitative impairment test).

In performing the qualitative impairment test, the Company considers the results of the most recent quantitative impairment test and identifies the most relevant drivers of the fair value for the IPR&D asset. The most relevant drivers of fair value identified are consistent with the assumptions used in the quantitative estimate of the IPR&D asset. Using these drivers of fair value, the Company identifies events and circumstances which may have an effect on the fair value of the IPR&D asset since the last time the IPR&D's fair value was quantitatively determined. The Company then weighs these factors to determine and conclude if it is not more likely than not the IPR&D asset is impaired. If it is more likely than not the IPR&D asset is impaired, the Company proceeds with quantitatively determining the fair value of the IPR&D asset.

When performing the quantitative impairment test, the Company uses the income approach to determine the fair value of its IPR&D asset. This approach calculates fair value by estimating the after-tax cash flows attributable to an in-process project over its useful life and then discounting these after-tax cash flows back to a present value. This estimate includes judgmental assumptions regarding the estimates that market participants would make in evaluating the IPR&D asset, including the probability of successfully completing clinical trials and obtaining regulatory approval to market the IPR&D asset, the timing of and the expected costs to complete IPR&D projects, future net cash flows from potential drug sales, which are based on estimates of the sales price of the drug, the size of the patient population and cure rate, its competitive position in the marketplace, and appropriate discount and tax rates. Any impairment to be recorded is calculated as the difference between the estimated fair value and the carrying value of the IPR&D asset on the Company's Condensed Consolidated Balance Sheet.

If a change in circumstance occurs that indicates long-lived assets may be impaired, the Company performs a test of recoverability by comparing the carrying value of the asset or asset group to its undiscounted expected future cash flows. The long-lived asset evaluation is performed at the asset group level, i.e., the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets and liabilities. If this review indicates that the carrying amount of the asset group is not recoverable, an impairment loss is measured as the amount by which the carrying amount of an asset group exceeds its fair value. Any impairment loss is allocated to the long-lived assets of the group on a pro rata basis using the relative carrying amounts of those assets, except that the carrying amount of an individual asset shall not be reduced below its fair value.

Factors that may indicate potential impairment and trigger an impairment test include, but are not limited to, general macroeconomic conditions, conditions specific to the industry and market, an adverse change in legal factors, impairment of goodwill or indefinite-lived intangible assets, business climate or operational performance of the business, and sustained decline in the stock price and market capitalization compared to the net book value.

Calculating the fair value of a reporting unit, an asset group and an individual asset involves significant estimates and assumptions. These estimates and assumptions include, among others, projected future cash flows, risk-adjusted discount rates, future economic and market conditions, and the determination of appropriate market comparables. Changes in these factors and assumptions used can materially affect the amount of impairment loss recognized in the period the asset was considered impaired.

Cash, Cash Equivalents, and Restricted Cash

Sangamo considers all highly liquid investments purchased with original maturities of three months or less at the purchase date to be cash equivalents. Cash and cash equivalents consist of cash, deposits in demand money market accounts and U.S. government-sponsored entity debt securities. Restricted cash consists of a letter of credit for $1.5 million, representing a deposit for the lease of the corporate headquarters in Brisbane, California.

A reconciliation of cash, cash equivalents, and restricted cash reported within the Condensed Consolidated Balance Sheets to the amounts reported within the accompanying Condensed Consolidated Statements of Cash Flows is as follows (in thousands):

	September 30, 2023	December 31, 2022	September 30, 2022	December 31, 2021
Cash and cash equivalents	$ 56,514	$ 100,444	$ 94,570	$ 178,872
Non-current restricted cash	1,500	1,500	1,500	1,500
Cash, cash equivalents, and restricted cash as reported within the accompanying Condensed Consolidated Statements of Cash Flows	$ 58,014	$ 101,944	$ 96,070	$ 180,372

Marketable Securities

Sangamo classifies its marketable securities as available-for-sale and records its investments at estimated fair value based on quoted market prices or observable market inputs of almost identical assets, with the unrealized holding gains and losses included in accumulated other comprehensive income (loss) (“AOCI”). The Company classifies those investments that are not required for use in current operations and that mature in more than 12 months as non-current marketable securities in the accompanying Condensed Consolidated Balance Sheets.

The Company’s investments are subject to a periodic impairment review. The Company considers various factors in determining whether to recognize an impairment charge, including the length of time and extent to which the fair value has been less than the cost basis, the Company's financial condition and its intent and ability to hold the investment for a period of time sufficient to allow for any anticipated recovery in market value. Realized gains and losses on marketable securities are included in interest and other income, net, which are determined using the specific identification method. Credit losses related to the marketable securities are recorded in interest and other income, net in the Condensed Consolidated Statements of Operations through an allowance for credit losses rather than as a reduction in the amortized cost basis of the securities.

If the Company intends to sell, or if it is more likely than not that the Company will be required to sell, a security before recovery of its amortized cost basis, the allowance for credit losses is written off, and the amortized cost of the security is written down to its fair value, with an impairment charge recognized. This also results in a reversal of any unrealized gains and losses for this security that were previously included in AOCI. Impairment charges are included in interest and other income, net in the Condensed Consolidated Statements of Operations.

Leases

The Company determines if an arrangement is or contains a lease at inception by assessing whether the arrangement contains an identified asset and whether it has the right to control the identified asset. Right-of-use assets represent the Company’s right to use an underlying asset for the lease term and lease liabilities represent the Company’s obligation to make lease payments

arising from the lease. Lease liabilities are recognized at the lease commencement date based on the present value of future lease payments over the lease term. Right-of-use assets are based on the measurement of the lease liability and also include any lease payments made prior to or on lease commencement and exclude lease incentives and initial direct costs incurred, as applicable.

As the implicit rate in the Company's leases is generally unknown, the Company uses its incremental borrowing rate based on the information available at the lease commencement date in determining the present value of remaining lease payments. The incremental borrowing rate represents an estimate of the interest rate the Company would incur at lease commencement to borrow an amount equal to the lease payments on a collateralized basis over the term of a lease in a similar economic environment. The Company considers its credit risk, term of the lease, and total lease payments and adjusts for the impacts of collateral, as necessary, when calculating its incremental borrowing rates. The lease terms may include options to extend or terminate the lease when it is reasonably certain the Company will exercise any such options. Rent expense for the Company's operating leases is recognized on a straight-line basis over the lease term. The Company will evaluate the lease arrangement for impairment whenever events or changes in circumstances indicate that the carrying amounts of the right-of-use asset may not be fully recoverable. To the extent an impairment of the right-of-use asset is recognized, the Company will recognize lease impairment and subsequently amortize the remaining lease asset on a straight-line basis (unless another systematic basis is more representative of the pattern in which the Company expects to consume the future economic benefits from the asset) from the date of impairment to the earlier of the end of the right-of-use asset's useful life or the end of the lease term.

The Company has elected not to separate lease and non-lease components for its real estate and copier leases and, as a result, accounts for any lease and non-lease components as a single lease component. The Company has also elected not to apply the recognition requirement to any leases with a term of 12 months or less and does not include an option to purchase the underlying asset that the Company is reasonably certain to exercise.

Recently Adopted Accounting Pronouncements

None.

NOTE 2—FAIR VALUE MEASUREMENTS

The Company measures certain financial assets and liabilities at fair value on a recurring basis, including cash equivalents and marketable securities. Fair value is determined based on a three-tier hierarchy under the authoritative guidance for fair value measurements and disclosures that prioritizes the inputs used in measuring fair value as follows:

Level 1: Unadjusted quoted prices in active markets that are accessible at the measurement date for identical, unrestricted assets or liabilities;

Level 2: Quoted prices in markets that are not active or inputs which are observable, either directly or indirectly, for substantially the full term of the asset or liability; and

Level 3: Prices or valuation techniques that require inputs that are both significant to the fair value measurements and unobservable (i.e., supported by little or no market activity).

The fair value measurements of the Company's cash equivalents and marketable securities are identified at the following levels within the fair value hierarchy (in thousands):

	September 30, 2023			
	Fair Value Measurements			
	Total	Level 1	Level 2	Level 3
Assets:				
Cash equivalents:				
Money market funds	$ 3,417	$ 3,417	$ —	$ —
Total	3,417	3,417	—	—
Marketable securities:				
U.S. government-sponsored entity debt securities	28,637	—	28,637	—
Commercial paper securities	18,891	—	18,891	—
Corporate debt securities	1,379	—	1,379	—
Asset-backed securities	8,429	—	8,429	—
U.S. treasury bills	5,581	—	5,581	—
Certificates of deposit	12,680	—	12,680	—
Total	75,597	—	75,597	—
Total cash equivalents and marketable securities	$ 79,014	$ 3,417	$ 75,597	$ —

	December 31, 2022			
	Fair Value Measurements			
	Total	Level 1	Level 2	Level 3
Assets:				
Cash equivalents:				
Money market funds	$ 50,820	$ 50,820	$ —	$ —
Total	50,820	50,820	—	—
Marketable securities:				
U.S. government-sponsored entity debt securities	18,417	—	18,417	—
Commercial paper securities	101,165	—	101,165	—
Corporate debt securities	11,670	—	11,670	—
Asset-backed securities	24,792	—	24,792	—
U.S. treasury bills	7,938	—	7,938	—
Certificates of deposit	37,461	—	37,461	—
Agency bonds	5,590	—	5,590	—
Total	207,033	—	207,033	—
Total cash equivalents and marketable securities	$ 257,853	$ 50,820	$ 207,033	$ —

Cash Equivalents and Marketable Securities

The Company generally classifies its marketable securities as Level 2. Instruments are classified as Level 2 when observable market prices for identical securities that are traded in less active markets are used. When observable market prices for identical securities are not available, such instruments are priced using benchmark curves, benchmarking of like securities, sector groupings, matrix pricing and valuation models. These valuation models are proprietary to the pricing providers or brokers and incorporate a number of inputs, including in approximate order of priority: benchmark yields, reported trades, broker/dealer quotes, issuer spreads, two-sided markets, benchmark securities, bids, offers and reference data including market research publications. For certain security types, additional inputs may be used, or some of the standard inputs may not be applicable. Evaluators may prioritize inputs differently on any given day for any security based on market conditions, and not all inputs listed are available for use in the evaluation process for each security evaluation on any given day.

NOTE 3—CASH EQUIVALENTS AND MARKETABLE SECURITIES

The table below summarizes the Company's cash equivalents and marketable securities (in thousands):

	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
September 30, 2023				
Assets				
Cash equivalents:				
Money market funds	$ 3,417	$ —	$ —	$ 3,417
Total	3,417	—	—	3,417
Marketable securities:				
U.S. government-sponsored entity debt securities	28,655	—	(18)	28,637
Commercial paper securities	18,901	—	(10)	18,891
Corporate debt securities	1,379	—	—	1,379
Asset-backed securities	8,429	—	—	8,429
U.S. treasury bills	5,599	—	(18)	5,581
Certificates of deposit	12,684	1	(5)	12,680
Total	75,647	1	(51)	75,597
Total cash equivalents and marketable securities	$ 79,064	$ 1	$ (51)	$ 79,014
December 31, 2022				
Assets				
Cash equivalents:				
Money market funds	$ 50,820	$ —	$ —	$ 50,820
Total	50,820	—	—	50,820
Marketable securities:				
U.S. government-sponsored entity debt securities	18,710	—	(293)	18,417
Commercial paper securities	101,336	22	(193)	101,165
Corporate debt securities	11,760	—	(90)	11,670
Asset-backed securities	24,970	2	(180)	24,792
U.S. treasury bills	7,950	—	(12)	7,938
Certificates of deposit	37,599	4	(142)	37,461
Agency bonds	5,598	—	(8)	5,590
Total	207,923	28	(918)	207,033
Total cash equivalents and marketable securities	$ 258,743	$ 28	$ (918)	$ 257,853

The fair value of marketable securities by contractual maturity were as follows (in thousands):

	September 30, 2023	December 31, 2022
Maturing in one year or less	$ 41,173	$ 177,188
Maturing after one year through five years	34,424	29,845
Total	$ 75,597	$ 207,033

There were no realized gains and losses on the sales of investments during the three and nine months ended September 30, 2023 and 2022. Total unrealized gains for securities with net gains in accumulated other comprehensive income were not material for the three and nine months ended September 30, 2023.

The Company manages credit risk associated with its investment portfolio through its investment policy, which limits purchases to high-quality issuers and also limits the amount of its portfolio that can be invested in a single issuer. The Company did not record an allowance for credit losses related to its marketable securities for the three and nine months ended September 30, 2023 and 2022.

The Company had unrealized losses related to its marketable securities for the three and nine months ended September 30, 2023 and 2022. The Company had no material unrealized losses, individually and in the aggregate, for marketable securities that are in a continuous unrealized loss position for greater than 12 months as of September 30, 2023 and December 31, 2022. These unrealized losses were not attributed to credit risk and were associated with changes in market conditions. The Company periodically reviews its marketable securities for indications of credit losses. The Company considers factors such as the duration, the magnitude and the reason for the decline in value, the potential recovery period, creditworthiness of the issuers of the securities and its intent to sell. No significant facts or circumstances have arisen to indicate that there has been any significant deterioration in the creditworthiness of the issuers of the securities held by the Company. Based on the Company's review of these securities, the Company determined that no allowance for credit losses related to its marketable securities was required at either September 30, 2023 or December 31, 2022.

The Company also considers whether it is more likely than not that the Company will be required to sell the debt securities before recovery of their amortized cost basis. Based on the scheduled maturities of its investments and projection of its cash flows in accordance with the current operating plan as of September 30, 2023, the Company determined that it was more likely than not that it will be required to sell various securities before recovery of their amortized cost basis. As a result, the Company reclassified its non-current marketable securities investments of $34.4 million as current as of September 30, 2023 and recorded an impairment charge of $0.4 million related to those securities during the three and nine ended September 30, 2023. No impairment charges were recorded during the three and nine ended September 30, 2022, as the Company concluded at that time it had the ability and intent to hold the long-term investments until maturity.

NOTE 4—BASIC AND DILUTED NET LOSS PER SHARE

Basic net loss per share has been computed by dividing net loss by the weighted-average number of shares of common stock outstanding during the period. Diluted net loss per share is calculated by dividing net loss by the weighted-average number of shares of common stock outstanding during the period, without consideration of any potential dilutive securities, as their effect would be anti-dilutive.

The total number of shares subject to stock options and restricted stock units ("RSUs") outstanding and the employee stock purchase plan ("ESPP") shares reserved for issuance, which are all anti-dilutive, were excluded from consideration in the calculation of diluted net loss per share attributable to Sangamo Therapeutics, Inc. stockholders. Stock options and RSUs outstanding and ESPP shares reserved for issuance as of September 30, 2023 and 2022 totaled 22,131,291 and 18,524,016, respectively.

NOTE 5—MAJOR CUSTOMERS, PARTNERSHIPS AND STRATEGIC ALLIANCES

Pfizer Inc.

Giroctocogene Fitelparvovec Global Collaboration and License Agreement

In May 2017, the Company entered into an exclusive global collaboration and license agreement with Pfizer Inc. ("Pfizer"), pursuant to which it established a collaboration for the research, development and commercialization of giroctocogene fitelparvovec, its gene therapy product candidate for hemophilia A, and closely related products.

Under this agreement, the Company is responsible for conducting the Phase 1/2 clinical trial and for certain manufacturing activities for giroctocogene fitelparvovec, while Pfizer is responsible for subsequent worldwide development, manufacturing, marketing and commercialization of giroctocogene fitelparvovec. Sangamo may also collaborate in the research and development of additional adeno-associated viruses ("AAV") -based gene therapy products for hemophilia A.

Subject to the terms of the agreement, the Company granted Pfizer an exclusive worldwide royalty-bearing license, with the right to grant sublicenses, to use certain technology controlled by the Company for the purpose of developing, manufacturing and commercializing giroctocogene fitelparvovec and related products. Pfizer granted the Company a non-exclusive, worldwide, royalty-free, fully paid license, with the right to grant sublicenses, to use certain manufacturing technology developed under the agreement and controlled by Pfizer to manufacture the Company's products that utilize the AAV delivery system. During a specified period, neither the Company nor Pfizer is permitted to clinically develop or commercialize, outside of the collaboration, certain AAV-based gene therapy products for hemophilia A.

Unless earlier terminated, the agreement has a term that continues on a per product and per country basis until the later of (i) the expiration of patent claims that cover the product in a country, (ii) the expiration of regulatory exclusivity for a product in a country, and (iii) fifteen years after the first commercial sale of a product in a country. Pfizer has the right to terminate the agreement without cause in its entirety or on a per product or per country basis. The agreement may also be terminated by either party based on an uncured material breach by the other party or the bankruptcy of the other party. Upon termination for any reason, the license granted by the Company to Pfizer to develop, manufacture and commercialize giroctocogene fitelparvovec and

related products will automatically terminate. Upon termination by the Company for cause or by Pfizer in any country or countries, Pfizer will automatically grant the Company an exclusive, royalty-bearing license under certain technology controlled by Pfizer to develop, manufacture and commercialize giroctocogene fitelparvovec in the terminated country or countries.

Upon execution of the agreement, the Company received an upfront fee of $70.0 million and was eligible to receive up to $208.5 million in payments upon the achievement of specified clinical development, intellectual property and regulatory milestones and up to $266.5 million in payments upon first commercial sale milestones for giroctocogene fitelparvovec and potentially other products. To date, two milestones of $55.0 million in aggregate have been achieved and paid. The Company is eligible to earn from Pfizer up to $220.0 million in remaining milestone payments for giroctocogene fitelparvovec and up to $175.0 million for other products that may be developed under the agreement, subject to reduction on account of payments made under certain licenses for third-party intellectual property. In addition, Pfizer agreed to pay the Company royalties for each potential licensed product developed under the agreement that are 14% - 20% of the annual worldwide net sales of such product and are subject to reduction due to patent expiration, entry of biosimilar products to the market and payment made under certain licenses for third-party intellectual property.

The Company assessed the agreement with Pfizer in accordance with ASC Topic 606 and concluded that Pfizer was a customer. The total transaction price under this agreement was $134.0 million, which represented the upfront fee and research services fees of $79.0 million and fees related to two achieved milestones in an aggregate amount of $55.0 million. Sangamo was responsible for internal and external research costs as part of the upfront fee and had the ability to request additional reimbursement from Pfizer if certain conditions were met. None of the constrained clinical or regulatory milestones were included in the transaction price. As part of its evaluation of the constraint, the Company considered numerous factors, including the fact that achievement of the milestones at the time was uncertain and contingent upon future periods when the uncertainty related to the variable consideration is resolved.

The Company has identified the performance obligations within the agreement as a license to the technology and ongoing research services. The Company concluded that the license was not discrete as it did not have stand-alone value to Pfizer apart from the research services to be performed by the Company pursuant to the agreement. As a result, the Company recognized revenue from the upfront payment based on proportional performance of the ongoing research services through 2020, the period during which the Company performed research services. The estimation of progress towards the satisfaction of its performance obligation and project cost was reviewed quarterly and adjusted, as needed, to reflect the Company's assumptions regarding the timing of its deliverables.

In December 2020, the Company satisfied the deliverables and research services responsibilities within the arrangement. As a result, the Company recognized the remaining deferred revenue from the upfront payment in December 2020.

C9ORF72 Research Collaboration and License Agreement

In December 2017, the Company entered into a separate exclusive, global collaboration and license agreement with Pfizer for the development and commercialization of potential gene therapy products that use zinc finger ("ZF") transcriptional regulators ("ZF-TRs") to treat amyotrophic lateral sclerosis and frontotemporal lobar degeneration linked to mutations of the *C9ORF72* gene. Pursuant to this agreement, the Company agreed to work with Pfizer on a research program to identify, characterize and preclinically develop ZF-TRs that bind to and specifically reduce expression of the mutant form of the *C9ORF72* gene.

Subject to the terms of this agreement, the Company granted Pfizer an exclusive, royalty-bearing, worldwide license under the Company's relevant patents and know-how to develop, manufacture and commercialize gene therapy products that use resulting ZF-TRs that satisfy pre-agreed criteria. During a specified period, neither the Company nor Pfizer will be permitted to research, develop, manufacture or commercialize outside of the collaboration any zinc finger proteins ("ZFPs") that specifically bind to the *C9ORF72* gene.

Unless earlier terminated, the agreement has a term that continues on a per licensed product and per country basis until the later of (i) the expiration of patent claims that cover the licensed product in a country, (ii) the expiration of regulatory exclusivity for a licensed product in a country, and (iii) 15 years after the first commercial sale of a licensed product in a major market country. Pfizer also has the right to terminate the agreement without cause in its entirety or on a per product or per country basis. The agreement may also be terminated by either party based on an uncured material breach by the other party or the bankruptcy of the other party. The agreement will also terminate if the Company is unable to identify any lead candidates for development within a specified period of time or if Pfizer elects not to advance a lead candidate beyond a certain development milestone within a specified period of time. Upon termination for any reason, the license granted by the Company to Pfizer to develop, manufacture and commercialize licensed products under the agreement will automatically terminate. Upon termination by the Company for cause or by Pfizer without cause for any licensed product or licensed products in any country or countries, the Company will have the right to negotiate with Pfizer to obtain a non-exclusive, royalty-bearing license under certain technology

controlled by Pfizer to develop, manufacture and commercialize the licensed product or licensed products in the terminated country or countries.

Following termination by the Company for Pfizer's material breach, Pfizer will not be permitted to research, develop, manufacture or commercialize ZFPs that specifically bind to the *C9ORF72* gene for a period of time. Following termination by Pfizer for the Company's material breach, the Company will not be permitted to research, develop, manufacture or commercialize ZFPs that specifically bind to the *C9ORF72* gene for a period of time.

The Company received a $12.0 million upfront payment from Pfizer and is eligible to receive up to $60.0 million in development milestone payments from Pfizer contingent on the achievement of specified preclinical development, clinical development and first commercial sale milestones, and up to $90.0 million in commercial milestone payments if annual worldwide net sales of the licensed products reach specified levels. In addition, Pfizer will pay the Company royalties of 14% - 20% of the annual worldwide net sales of the licensed products. These royalty payments are subject to reduction due to patent expiration, entry of biosimilar products to the market and payments made under certain licenses for third-party intellectual property. Each party will be responsible for the cost of its performance of the research program. Pfizer will be operationally and financially responsible for subsequent development, manufacturing and commercialization of the licensed products. To date, a milestone of $5.0 million has been achieved and paid, however no products have been approved and therefore no royalty fees have been earned under the *C9ORF72* Pfizer agreement.

The Company assessed the agreement with Pfizer in accordance with ASC Topic 606 and concluded that Pfizer was a customer. The Company concluded the total transaction price under this agreement was $17.0 million, which represented the upfront fees of $12.0 million and fees related to achievement of one milestone in the amount of $5.0 million. None of the constrained clinical or regulatory milestones were included in the transaction price. As part of its evaluation of the constraint, the Company considered numerous factors, including the fact that achievement of the milestones at the time was uncertain and contingent upon future periods when the uncertainty related to the variable consideration is resolved.

The Company had identified the performance obligations within this agreement as a license to the technology and ongoing research services. The Company concluded that the license is not discrete as it does not have stand-alone value to Pfizer apart from the services to be performed by the Company pursuant to the agreement. As a result, the Company recognized revenue from the upfront payment based on proportional performance of the ongoing research services through 2020, the period the Company performed research services.

The Company satisfied the deliverables and research services responsibilities within the arrangement in September 2020, and as a result, earned a $5.0 million milestone, which the Company recognized on a cumulative basis during the year ended December 31, 2020. In addition, the Company recognized the remaining deferred revenue from the upfront payment in September 2020.

In October 2023, Pfizer notified the Company of Pfizer's assignment of the collaboration and license agreement to Alexion, AstraZeneca Rare Disease, pursuant to a definitive purchase and license agreement for preclinical gene therapy assets and enabling technologies that closed on September 20, 2023.

Kite Pharma, Inc.

In February 2018, the Company entered into a global collaboration and license agreement with Kite which became effective on April 5, 2018 ("Effective Date"), and was amended and restated in September 2019, for the research, development, and commercialization of potential engineered cell therapies for cancer. The collaboration and license agreement relates to the design of zinc finger nucleases ("ZFNs") and viral vectors to disrupt and insert certain genes in T-cells and natural killer cells ("NK-cells") including the insertion of genes that encode chimeric antigen receptors ("CARs"), T-cell receptors ("TCRs"), and NK-cell receptors ("NKRs") directed to mutually agreed targets. Under the agreement, Kite is responsible for all clinical development, manufacturing and commercialization of any resulting products.

Subject to the terms of this agreement, the Company granted Kite an exclusive, royalty-bearing, worldwide sublicensable license under the Company's relevant patents and know-how to develop, manufacture and commercialize, for the purpose of treating cancer, specific cell therapy products that may result from the research program and that are engineered *ex vivo* using selected ZFNs and viral vectors developed under the research program to express CARs, TCRs or NKRs directed to candidate targets.

Following the Effective Date, the Company received a $150.0 million upfront payment from Kite. In addition, Kite reimburses the Company's direct costs to conduct the joint research program. Under the terms of the agreement, Sangamo is also eligible to receive contingent development- and sales-based milestone payments that could total up to $3.0 billion if all of the specified milestones set forth in this agreement are achieved. Of this amount, approximately $1.3 billion relates to the achievement of specified research, clinical development, regulatory and first commercial sale milestones, and approximately $1.8 billion relates to the achievement of specified sales-based milestones if annual worldwide net sales of licensed products reach

specified levels. Each development- and sales-based milestone payment is payable (i) only once for each licensed product, regardless of the number of times that the associated milestone event is achieved by such licensed product, and (ii) only for the first 10 times that the associated milestone event is achieved regardless of the number of licensed products that may achieve such milestone event. In addition, the Company is entitled to receive escalating, tiered royalty payments with a percentage in the single digits based on future annual worldwide net sales of licensed products. These royalty payments are subject to reduction due to patent expiration, entry of biosimilar products to the market and payments made under certain licenses for third-party intellectual property.

The initial research term in the agreement is six years from the Effective Date and will expire in April 2024. Kite has an option to extend the research term for up to two additional one-year periods for a separate upfront fee of $10.0 million per year. All contingent payments under the agreement, when earned, will be non-refundable and non-creditable. Through the amendment and restatement of the agreement in September 2019, the Company and Kite agreed to expand the scope of the collaboration program to incorporate the use of lentiviral or retroviral vectors provided by Kite. Kite has the right to terminate this agreement in its entirety or on a per licensed product or per candidate target basis for any reason after a specified notice period. Each party has the right to terminate this agreement on account of the other party's bankruptcy or material, uncured breach.

The Company assessed the agreement with Kite in accordance with ASC Topic 606 and concluded that Kite is a customer. The transaction price includes the upfront license fee of $150.0 million and estimated reimbursable service costs for the research projects over the estimated performance period. None of the clinical or regulatory milestones have been included in the transaction price, as none of the milestones have yet been achieved, and all amounts are fully constrained. As part of its evaluation of the constraint, the Company considered numerous factors, including the fact that achievement of the milestones at this time is uncertain and contingent upon future periods when the uncertainty related to the variable consideration is resolved.

The transaction price also includes actual and estimated payments by Kite for the work by Company researchers and reimbursement of the Company's costs incurred with third parties. The Company uses the expected value method to estimate payments related to the Company's researchers' work, taking into account the impact of constraint. Variable consideration is included in the transaction price only to the extent it is probable a significant reversal of cumulative revenues recognized would not occur. The Company will re-evaluate the transaction price including the estimated variable consideration included in the transaction price and all constrained amounts in each reporting period and as uncertain events are resolved or other changes in circumstances occur.

The Company has identified four performance obligations within the Kite agreement as follows: (1) a license to the technology combined with the obligation to perform research and development services to apply the Company's technology to Kite-selected targets; (2) production of research materials; and (3-4) two material rights, each for an extension of the research period for an additional one-year term. Such extensions contain material rights because their exercise does not require payment of a fee that is commensurate with the value of the incremental research term. The license to the Company's intellectual property is not distinct from the related research and development activities as the licensed technology is not shared with and cannot be utilized by Kite without the research services performed by the Company.

The Company allocated variable consideration (payments by Kite for the work performed by the Company's researchers and third-party costs, as well as any future milestones and royalties) to the specific performance obligations to which they relate, as such allocation would meet the allocation objective in ASC Topic 606. The Company allocated the fixed consideration of $150.0 million to the performance obligations based on their relative standalone selling prices. Standalone selling prices of optional research years are similar to those of the initial year, but additionally take into account the intrinsic value of the discount upon exercise and the likelihood of exercise.

Fees allocated to options with material rights are deferred until the options are exercised or expire. The exercise of options is accounted for as contract continuation, with target selection fees and estimated variable consideration included in the transaction price at that time and allocated specifically to the respective target's performance obligation.

Revenue for the combined license and research services performance obligations is recognized over time, as Kite consumes the benefit of such services as they are being performed by the Company. For the license combined with research and development services performance obligation, the Company recognizes revenue based on proportional performance of the ongoing research services over the period during which the Company performs the services. The estimation of progress towards the satisfaction of this performance obligation and project costs are reviewed quarterly and adjusted, as needed, to reflect the Company's assumptions regarding the estimated volume of required activities. The production of research materials performance obligation is accounted for under the right to invoice practical expedient, as the Company has the right to invoice Kite for these services in an amount that corresponds directly with the value of the services.

As of September 30, 2023 and December 31, 2022, the Company had a receivable of $0.2 million and $0.7 million, respectively, and deferred revenue of $1.5 million and $19.4 million, respectively, related to this agreement. Changes in deferred revenue balances during the three and nine months ended September 30, 2023 relate to a reduction in the estimated future level of

the Company's research and development services under the collaboration agreement with Kite, as well as ongoing normal progress in the delivery of the performance obligations. The amounts of transaction price (excluding the amounts recognized as invoiced for the production of research materials performance obligation) remaining to be recognized were $1.5 million and $21.2 million, of which $1.5 million relates to fees allocated to options with material rights, as of September 30, 2023 and December 31, 2022, respectively. These amounts are expected to be recognized within the next 12 months. The timing of recognition will be affected by whether and when Kite exercises options for additional years of services and could be subject to significant changes.

Revenues recognized under the agreement were as follows (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Revenue related to Kite agreement:				
Recognition of license fee fixed consideration	$ 5,388	$ 6,296	$ 17,938	$ 18,682
Research services variable consideration	108	619	1,097	875
Total	$ 5,496	$ 6,915	$ 19,035	$ 19,557

In March 2023, the Company recorded additional revenue related to a change in estimate in connection with the collaboration agreement with Kite Pharma, Inc. This adjustment was driven by a reduction in the estimated future level of the Company's research and development services and as a result, future project costs. This resulted in an increase in proportional cumulative performance on this collaboration and an increase in revenue of $8.9 million, a decrease in net loss of $8.9 million, and a decrease in the Company's basic and diluted net loss per share of $0.05 for the nine months ended September 30, 2023.

In September 2023, the Company recorded additional revenue related to a change in estimate in connection with the collaboration agreement with Kite. This adjustment was driven by a further reduction in the estimated future level of the Company's research and development services and as a result, future project costs. This resulted in an increase in proportional cumulative performance on this collaboration and increased revenue by $4.9 million, decreased net loss by $4.9 million, and decreased the Company's basic and diluted net loss per share by $0.03 for the three and nine months ended September 30, 2023.

Novartis Institutes for BioMedical Research, Inc.

On July 27, 2020, the Company entered into a collaboration and license agreement with Novartis Institutes for BioMedical Research, Inc. ("Novartis") for the research, development and commercialization of gene regulation therapies to treat three neurodevelopmental disorders. Under the agreement, which was effective upon execution, the Company granted Novartis an exclusive, royalty bearing and worldwide license, under its relevant patents and know-how, to develop, manufacture and commercialize certain of its ZF-TRs targeted to three undisclosed genes that are associated with certain neurodevelopmental disorders, including autism spectrum disorder and intellectual disability. The Company was performing early research activities over the collaboration period for each gene target and manufacture the ZF-TRs required for such research, costs of which are funded by Novartis. Novartis was responsible for additional research activities, studies enabling INDs, clinical development, regulatory approvals, manufacturing of preclinical, clinical and approved products, and global commercialization. Subject to certain exceptions set forth in the agreement, the Company was prohibited from developing, manufacturing or commercializing any therapeutic product targeting any of the three genes that are the subject of the collaboration. Novartis also had the option to license certain of the Company's proprietary AAVs for the sole purpose of developing, manufacturing and commercializing licensed products arising from the collaboration.

In March 2023, Novartis notified the Company of its termination for convenience, effective June 11, 2023 (the "Novartis Termination Date"), of the collaboration agreement. Novartis had indicated to the Company that the termination relates to a recent strategic review. As of the Novartis Termination Date, the collaboration agreement was terminated in its entirety and following the Novartis Termination Date the Company is not entitled to receive any further milestone payments or royalties from Novartis. As of the Novartis Termination Date, the parties have no further obligations to develop or to fund the development of any collaboration research programs under the collaboration agreement.

Upon entering the agreement, Novartis paid the Company a $75.0 million upfront license fee. Novartis was also obligated to pay the Company for the use of its resources and reimburse third-party costs incurred in the Company's conduct of early research activities. The Company was also eligible to earn from Novartis development and commercial milestones and royalties on potential commercial sales of licensed products arising from the collaboration, none of which were triggered or earned. The agreement was going to continue, on a product-by-product and country-by-country basis, until the expiration of the applicable royalty term.

All payments received under the agreement were non-refundable and non-creditable. The transaction price of $95.1 million included the upfront license fee of $75.0 million and research costs of $20.1 million. All clinical or regulatory milestone amounts were considered fully constrained throughout the term of the agreement.

The Company assessed the agreement with Novartis in accordance with ASC Topic 606 and concluded that Novartis was a customer. The Company had identified a single performance obligation within this arrangement as a license to the technology and ongoing research services. The Company concluded that the license was not discrete as it did not have stand-alone value to Novartis apart from the research services to be performed pursuant to the agreement. As a result, the Company recognized revenue from the upfront payment based on proportional performance of the ongoing research services through the estimated research period. The estimation of progress towards the satisfaction of performance obligation and project cost was reviewed quarterly and adjusted, as needed, to reflect the Company's current assumptions regarding the timing of its performance obligation.

The notice of termination was accounted for as a modification of the contract, as it changed both the scope of the Company's remaining services and the consideration to which the Company was entitled. The effect of the modification was not material, as the Company was nearing the completion of its assigned early research activities, and consequently, of its sole performance obligation.

As of September 30, 2023 and December 31, 2022, the Company had a receivable of zero and $2.2 million, respectively, and deferred revenue of zero and $9.6 million, respectively, related to this agreement.

Revenues recognized under the agreement were as follows (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Revenue related to Novartis agreement:				
Recognition of upfront license fee	$ —	$ 7,582	$ 9,568	$ 23,222
Research services	—	2,028	2,611	6,211
Total	$ —	$ 9,610	$ 12,179	$ 29,433

Biogen MA, Inc.

In February 2020, the Company entered into a collaboration and license agreement with Biogen MA, Inc. ("BIMA") and Biogen International GmbH (together with BIMA, "Biogen") for the research, development and commercialization of gene regulation therapies for the treatment of neurological diseases. The companies planned to leverage the Company's proprietary ZF technology delivered via AAV to modulate expression of key genes involved in neurological diseases. Concurrently with the execution of the collaboration agreement, the Company entered into a stock purchase agreement with BIMA, pursuant to which BIMA agreed to purchase 24,420,157 shares of the Company's common stock (the "Biogen Shares"), at a price per share of $9.2137, for an aggregate purchase price of approximately $225.0 million. The collaboration agreement became effective in April 2020.

In March 2023, Biogen notified the Company of its termination for convenience, effective June 15, 2023 (the "Biogen Termination Date"), of the collaboration agreement. Biogen had indicated to the Company that the termination relates to a recent strategic review. As of the Biogen Termination Date, the collaboration agreement was terminated in its entirety and following the Biogen Termination Date the Company is not entitled to receive any further milestone payments or royalties from Biogen. As of the Biogen Termination Date, the parties have no further obligations to develop or to fund the development of any collaboration research programs under the collaboration agreement.

Under the collaboration agreement, Biogen paid the Company an upfront license fee of $125.0 million in May 2020. The Company was also eligible to receive target selection, research, development, regulatory and commercial milestone payments and royalties on potential net commercial sales of licensed products arising from the collaboration, none of which were triggered or earned.

Under the collaboration agreement, the Company granted to Biogen an exclusive, royalty bearing and worldwide license, under its relevant patents and know-how, to develop, manufacture and commercialize ZF and/or AAV-based products directed to certain neurological disease gene targets selected by Biogen. Biogen had selected four targets over the course of the collaboration and had exclusive rights to nominate up to seven additional targets. These rights expired upon the Biogen Termination Date. For each gene target selected by Biogen, the Company performed early research activities, costs of which were shared by the companies, aimed at the development of the combination of proprietary central nervous system delivery vectors and ZF-TRs (or potential other ZF products) targeting therapeutically relevant genes.

The Company assessed the collaboration agreement with Biogen in accordance with ASC Topic 606 and concluded that Biogen is a customer. The transaction price included the upfront license fee of $125.0 million and the excess consideration from the stock purchase of $79.6 million, which represented the difference between the $225.0 million received for the purchase of the Biogen Shares and the $145.4 million estimated fair value of the equity issued. The equity issued to Biogen was valued using an option pricing model to reflect certain holding period restrictions. None of the clinical or regulatory milestones were included in the transaction price, as all such amounts were fully constrained throughout the term of the collaboration agreement. The transaction price also included actual and estimated cost-sharing payments by Biogen for the work by Company researchers and reimbursement of the Company's costs incurred with third parties. The amounts paid and expected to be paid to Biogen for the use of Biogen's resources and its expenses were consideration paid to a customer. Since the Company did not acquire distinct goods or services in exchange for these payments, they reduced the transaction price and were recorded as a reduction in revenue. The Company used the expected value method to estimate cost sharing payments, taking into account the impact of the constraint. Variable consideration was included in the transaction price only to the extent it was probable a significant reversal of cumulative revenues recognized would not occur. The Company re-evaluated the transaction price as uncertain events were resolved or other changes in circumstances occurred.

The Company concluded that the licenses to its intellectual property for each target were not distinct from the related research and development activities, as the licensed technology was not shared with and could not be utilized by Biogen without the research services to be performed by the Company pursuant to the agreement. On the other hand, each combination of a license to the Company's intellectual property as applied to a specific target and the related research and development activities are a discrete research project that is distinct from any other target's project. The targets Biogen could select were options that provided Biogen with material rights, as the exercise of the options did not require payment of a fee commensurate with the value of the incremental license rights. As a result, such options also represented performance obligations.

At contract inception, the Company allocated fixed consideration of $204.6 million included in the initial transaction price to the existing targets' license and research services performance obligations and those performance obligations for options that include material rights, based on their relative standalone selling prices. Through June 30, 2023, all such material rights have expired.

The notice of termination was accounted for as a modification of the contract, as it changed both the scope of the Company's remaining services and the consideration to which the Company was entitled. The remaining research and development activities to be undertaken by the Company after the notice of termination were not distinct from the related activities performed prior to the modification on the same targets but were distinct from the activities on other targets. The remaining material rights were also distinct from the prior research and development activities. To account for the effects of the modification, the Company updated its estimate of the transaction price and allocated the remaining transaction consideration based on the relative standalone selling prices of the remaining distinct goods and services. Progress for each ongoing performance obligation was then remeasured using an updated estimate of the total level of effort required for each performance obligation and the total revised transaction price and a cumulative catch-up in revenue was recorded. The modification resulted in an increase in revenue of $127.1 million.

As of September 30, 2023 and December 31, 2022, the Company had a receivable of zero and $0.5 million, respectively, and deferred revenue of zero and $132.2 million, respectively, related to this agreement. Changes in deferred revenue balances during the nine months ended September 30, 2023 relate primarily to the impact of the contract modification. The amounts of transaction price remaining to be recognized were zero and $151.3 million as of September 30, 2023 and December 31, 2022, respectively.

Revenues recognized under the agreement were as follows (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Revenue related to Biogen agreement:				
Recognition of license and other fixed consideration	$ —	$ 7,306	$ 132,165	$ 21,918
Cost-sharing payments for research services, net variable consideration	—	2,107	2,684	8,740
Total	$ —	$ 9,413	$ 134,849	$ 30,658

The Company paid $7.0 million for financial advisory fees during the year ended December 31, 2020, equal to 2% of $225.0 million received for the sale of shares and 2% of $125.0 million received for the upfront fee. The fees incurred related to both the collaboration agreement with Biogen and the stock purchase agreement for the sale of shares. The Company believes that the allocation of fees on a relative fair value basis between the two agreements is reasonable. The Company recognized $4.1 million, which represents 2% of the initial transaction price of $204.6 million, as a contract cost asset. This balance was

released into general and administrative expenses on a systematic basis consistent with the transfer of the services to Biogen in accordance with Accounting Standard Codification Topic 340, *Other Assets and Deferred Costs*. In March, as a result of the notice of termination and resulting modification of the contract, the progress for each performance obligation was remeasured and the Company recognized $2.5 million as a cumulative catch-up to expense. The Company recognized as expense zero and $2.6 million during the three and nine months ended September 30, 2023, respectively, and $0.1 million and $0.4 million during the three and nine months ended September 30, 2022, respectively.

NOTE 6—IMPAIRMENT OF GOODWILL, INDEFINITE-LIVED INTANGIBLE ASSETS AND OTHER LONG-LIVED ASSETS

Three months ended March 31, 2023

During the three months ended March 31, 2023, as a result of the sustained decline in the Company's stock price and related market capitalization, termination of the collaboration agreements with Biogen and Novartis, and a general decline in equity values in the biotechnology industry, the Company performed an impairment assessment of goodwill, indefinite-lived intangible assets, and long-lived assets.

The Company operates as a single reporting unit based on its business and reporting structure. For goodwill, a quantitative impairment assessment was performed using a market approach, whereby the Company's fair value of equity was compared to its carrying value. The fair value of equity was derived using both the market capitalization of the Company and an estimate of a reasonable range of values of a control premium applied to the Company's implied business enterprise value. The control premium was estimated based upon control premiums observed in comparable market transactions. This represents a level 2 nonrecurring fair value measurement. Based on this analysis, the Company recognized a pre-tax goodwill impairment charge of $38.1 million during the three months ended March 31, 2023. As a result, the goodwill was fully impaired as of March 31, 2023.

Before completing the goodwill impairment assessment, the Company also tested its indefinite-lived intangible assets and then its long-lived assets for impairment. Based on the qualitative assessment, the Company determined it was more likely than not that its indefinite-lived intangible assets were not impaired. The Company determined all of its long-lived assets represent one asset group for purposes of long-lived asset impairment assessment. The Company concluded that the carrying value of the asset group was not recoverable as it exceeded the future undiscounted cash flows the assets are expected to generate from the use and eventual disposition. To allocate and recognize the impairment loss, the Company determined individual fair values of its long-lived assets. The Company applied a discounted cash flow method to estimate fair values of its leasehold improvements and right-of-use assets, including leasehold improvements in the process of construction and a cost replacement method to estimate the fair value of its furniture, fixtures and laboratory and manufacturing equipment. These represented level 3 nonrecurring fair value measurements. Based on this analysis, the Company recognized pre-tax long-lived asset impairment charges of $11.2 million on the right-of-use assets, $5.0 million on the related leasehold improvements, and $4.2 million on construction-in-progress, during the three months ended March 31, 2023. No impairment was recognized on the remaining long-lived assets as their carrying values were not in excess of their fair values.

Three months ended June 30, 2023

During the three months ended June 30, 2023, the Company's stock price and the related market capitalization continued to decline. In April 2023, the Company announced a restructuring of operations and a corresponding reduction in force, see Note 9 – *Restructuring Charges*. The Company also initiated discussions around several actions aimed at reducing costs, preserving liquidity and improving operational performance metrics. These actions include but are not limited to deferral and reprioritization of certain research and development programs, further reduction in force, and closing or downsizing its facilities.

The Company reassessed its indefinite-lived and long-lived assets for impairment as of June 30, 2023. Given the actions contemplated above, the Company determined that it was more likely than not that its indefinite-lived intangible assets were impaired. Accordingly, the Company developed an estimate of the fair value of its indefinite-lived intangible assets using the multi-period excess earnings model (income approach) and concluded the carrying value of its indefinite-lived intangible assets were fully impaired. This represents a level 3 nonrecurring fair value measurement. As a result, an indefinite-lived intangible assets impairment charge of $51.3 million, as well as the related income tax benefit of $6.3 million due to the reversal of a deferred tax liability associated with the indefinite-lived intangible assets was recognized during the three months ended June 30, 2023. The impairment charge was primarily driven by a higher discount rate applied to future cash flows based on market participants' view of increased risk related to the asset.

The Company determined that there were indicators of impairment in its long-lived asset group as of June 30, 2023, based on the same factors above as well as the impairment of its indefinite-lived intangible assets. As the estimated fair value of this asset group, based on a market approach, exceeded its carrying value, no impairment loss was recognized. This represented a level 3 nonrecurring fair value measurement.

Three months ended September 30, 2023

During the three months ended September 30, 2023, the Company's stock price and the related market capitalization continued to decline, and as such, the Company reassessed its long-lived assets for impairment as of September 30, 2023.

The Company determined all of its long-lived assets continued to represent one asset group for purposes of long-lived asset impairment assessment. The Company concluded that the carrying value of the asset group was not recoverable and the estimated fair value of this asset group was below its carrying value. The lower fair value of the asset group was mainly driven by the sustained decline in the Company's stock price and the related market capitalization. To recognize the impairment loss, the Company determined individual fair values of its long-lived assets. The Company applied a discounted cash flow method to estimate fair values of its leasehold improvements and right-of-use assets, including leasehold improvements in the process of construction, and a market approach to estimate the fair value of its furniture, fixtures and laboratory and manufacturing equipment. These represented level 3 nonrecurring fair value measurements. Based on this analysis, the Company concluded the fair values of the long-lived assets were lower than their net book values due to declines in the market prices for leases, furniture, fixtures, and equipment. The Company recognized pre-tax long-lived asset impairment charges of $17.6 million on the right-of-use assets, $13.7 million on the related leasehold improvements and construction-in-progress, and $13.5 million on furniture, fixtures, and laboratory and manufacturing equipment during the three months ended September 30, 2023.

The Company will continue to assess whether its long-lived assets are impaired in future periods. As the Company finalizes and implements its plans related to cost reductions and liquidity preservation, it is reasonably possible that additional impairment charges will be recognized if the Company changes how it uses various long-lived assets or elects to dispose of them, and the cash flows associated with these assets become separately identifiable. In this case, such assets will be tested for impairment separately from the remaining long-lived assets of the Company.

NOTE 7—STOCK-BASED COMPENSATION

The following table shows total stock-based compensation expense recognized in the accompanying Condensed Consolidated Statements of Operations (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Research and development	$ 3,236	$ 4,395	$ 11,996	$ 13,656
General and administrative	2,953	3,398	9,260	9,746
Total stock-based compensation expense	$ 6,189	$ 7,793	$ 21,256	$ 23,402

NOTE 8—STOCKHOLDERS' EQUITY

At-the-Market Offering Agreement

In August 2020, the Company entered into an Open Market Sale Agreement℠ with Jefferies LLC ("Jefferies") with respect to an at-the-market offering program under which the Company may offer and sell, from time to time at its sole discretion, shares of the Company's common stock having an aggregate offering price of up to $150.0 million through Jefferies as the Company's sales agent or principal. In December 2022, the Company entered into Amendment No. 2 to the Open Market Sale Agreement℠ which increased the aggregate offering price under the at-the-market offering program by an additional $175.0 million. The Company is not obligated to sell any shares under the sales agreement. No shares were sold under the sales agreement during the three months ended September 30, 2023. During the nine months ended September 30, 2023, the Company sold 8,249,261 shares of its common stock for net proceeds of approximately $15.1 million. During the three and nine months ended September 30, 2022, the Company sold 8,483,104 and 14,711,770 shares of its common stock for net proceeds of approximately $42.2 million and $66.4 million, respectively.

NOTE 9—RESTRUCTURING CHARGES

On April 26, 2023, the Company executed a restructuring of operations and a corresponding reduction in workforce (the "April Restructuring"), designed to reduce costs and increase focus on certain strategic priorities. The April Restructuring resulted in the elimination of approximately 110 roles, including 55 full-time employees and 55 contracted employees and eliminated open positions, in the United States, or approximately 23% of the total United States workforce as of April 26, 2023, and included one-time severance payments and other employee-related costs, including additional vesting of service-based stock compensation awards. No expenses related to the April Restructuring were incurred during the three months ended September 30, 2023. The Company incurred approximately $5.3 million of expenses related to the April Restructuring in the nine months ended September 30, 2023, of which $4.1 million is included in research and development expense and $1.2 million is included in general and administrative expense in the accompanying Condensed Consolidated Statements of Operations. The Company

expects the April Restructuring and the cash payments related to the April Restructuring to be complete by the third quarter of 2024.

The following table is a summary of accrued April Restructuring costs included within other accrued liabilities on the Company's Condensed Consolidated Balance Sheet as of September 30, 2023 (in thousands):

	Nine Months Ended September 30, 2023
Balance at December 31, 2022	$ —
Restructuring charges	5,337
Cash payments	(3,033)
Non-cash adjustments	(305)
Balance at September 30, 2023	$ 1,999

NOTE 10—INCOME TAXES

The Company's provision for income taxes for interim periods is determined using an estimate of its annual effective tax rate, adjusted for discrete items, if any, that arise during the period. Each quarter, the Company updates its estimate of the annual effective tax rate, and if the estimated annual effective tax rate changes, the Company makes a cumulative adjustment in such period. During the three months ended September 30, 2023 and 2022 the Company recorded an income tax expense of $1.3 million and $0.1 million, respectively. During the nine months ended September 30, 2023 and 2022, the Company recorded income tax benefit of $4.8 million and income tax expense of $0.2 million, respectively.

The Company continues to maintain a full valuation allowance on its U.S. federal and state, Sangamo France, and Sangamo United Kingdom net deferred tax assets, as the Company believes it is not more likely than not that these benefits will be realized. The net tax benefit for the nine months ended September 30, 2023 was primarily related to the impairment of the IPR&D asset, which was offset by the reduction of its United Kingdom's deferred tax asset. The tax expense for the nine months ended September 30, 2022 was primarily due to foreign income tax expense.

On August 16, 2022, the Inflation Reduction Act of 2022 was signed into law, and became effective in 2023, with tax provisions primarily focused on implementing a 15% minimum tax on global adjusted financial statement income and a 1% excise tax on share repurchases. The Company has evaluated the provisions of the tax law and noted that the law change would not have a material impact on the Condensed Consolidated Financial Statements.

NOTE 11—SUBSEQUENT EVENTS

November Restructuring

On October 11, 2023, the Board of Directors of the Company approved a restructuring of operations and a corresponding reduction in workforce (the "November Restructuring"), designed to reduce costs and advance its strategic transformation into a neurology-focused genomic medicine company. The Company notified employees affected by the November Restructuring on November 1, 2023. The Company expects the November Restructuring to result in the elimination of approximately 162 roles in the United States, or approximately 40% of its United States workforce. The Company estimates that it will incur approximately $8 million to $10 million in cash-based expenses related to employee severance and notice period payments, benefits and related restructuring costs. The Company expects that the majority of the restructuring charges will be incurred in the fourth quarter of 2023 and that the execution of the November Restructuring will be substantially complete by the second quarter of 2024. The Company may also incur other charges or cash expenditures not currently contemplated due to events that may occur as a result of, or associated with, the November Restructuring.

Departure of Certain Officers

In connection with the November Restructuring, the employment of each of D. Mark McClung, Executive Vice President, Chief Operating Officer, and Jason Fontenot, Ph.D., Senior Vice President, Chief Scientific Officer, will terminate, effective as of January 2, 2024. In connection with the termination of their employment, pursuant to the Amended Severance Plan (as defined below), Mr. McClung and Dr. Fontenot are entitled to certain severance benefits in exchange for the execution of a general settlement and release agreement.

Approval of Amended and Restated Executive Severance Plan

On October 28, 2023, the Compensation Committee of the Board of Directors of the Company approved an amendment and restatement of the Company's Amended and Restated Executive Severance Plan (as so amended and restated, the "Amended Severance Plan").

The purpose of such amendment and restatement is to provide for the payment of certain severance benefits in the form of a lump sum (instead of in installments or monthly reimbursements) following termination. Specifically, if an Eligible Employee (as defined in the Amended Severance Plan and which includes all of the Company's executive officers) becomes entitled to severance benefits under the Amended Severance Plan, (i) cash severance payments will be made in the form of a lump sum within 60 days following the Eligible Employee's termination (instead of in the form of installments over the applicable severance period, which may range from 9 to 18 months following such termination depending on the Eligible Employee's position) and (ii) cash payments intended to replace COBRA premium reimbursements may be made in the form of a lump sum within 60 days following the Eligible Employee's termination (instead of in the form of monthly reimbursements over the applicable severance period), in the Company's discretion, in each case to the extent that such payments (a) are exempt from Section 409A of the Internal Revenue Code of 1986, as amended (the "Code"), as determined by the Company in its discretion at the time of the Eligible Employee's termination, or (ii) may otherwise be made in a lump sum upon such termination without causing adverse tax consequences under Section 409A of the Code.

The changes regarding the timing and form of payment of certain severance benefits under the Amended Severance Plan, as described above, were the only material changes made under the Amended Severance Plan. No other material changes (including changes regarding eligibility for, or the amount or type of, severance benefits) were made under the Amended Severance Plan.

Change of Company Headquarters

On November 1, 2023, the Company announced that it expects to close its Brisbane, California facility in early 2024 to conserve cash resources, and intends to transition Company headquarters to its Richmond, California facility as of January 1, 2024. The Company may incur charges or cash expenditures not currently contemplated due to events that may occur as a result of, or associated with, the closure of its Brisbane, California facility and the transition of company headquarters to its Richmond, California facility.

Nasdaq Deficiency Notice

On October 27, 2023, the Company received a deficiency notice (the "Notice") from the Listing Qualifications Staff (the "Staff") of The Nasdaq Stock Market LLC ("Nasdaq") notifying the Company that, for the last 30 consecutive business days, the bid price of the Company's common stock had closed below $1.00 per share, the minimum closing bid price required by the continued listing requirements of Nasdaq Listing Rule 5450(a)(1). The Notice has no immediate effect on the listing of the Company's common stock on the Nasdaq Global Select Market.

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

The discussion in "Management's Discussion and Analysis of Financial Condition and Results of Operations" contains trend analysis, estimates and other forward-looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act. These forward-looking statements include, without limitation, statements containing the words "anticipates," "believes," "continues," "could," "estimates," "expects," "intends," "may," "plans," "seeks," "should," "will," and other words of similar import or the negative of those terms or expressions. Such forward-looking statements are subject to known and unknown risks, uncertainties, estimates and other factors that may cause our actual results, performance or achievements, or industry results, to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements. Actual results could differ materially from those set forth in such forward-looking statements as a result of, but not limited to, the "Risk Factors" described in Part I, Item 1A our Annual Report on Form 10-K for the year ended December 31, 2022 as filed with the Securities and Exchange Commission on February 23, 2023, or the 2022 Annual Report, as supplemented by the risks described under "Risk Factors" in Part II, Item 1A of this Quarterly Report on Form 10-Q. You should also read the following discussion and analysis in conjunction with our Condensed Consolidated Financial Statements and accompanying notes included in this Quarterly Report and the Consolidated Financial Statements and accompanying notes thereto included in our 2022 Annual Report.

Overview

We are a clinical-stage genomic medicine company committed to translating ground-breaking science into medicines that transform the lives of patients and families afflicted with serious diseases. We plan to deliver on this mission through development of our clinical and preclinical product candidates leveraging our novel science and process development capabilities.

Corporate Updates

- In November 2023, we announced that we have made additional progress towards our strategic transformation into a genomic medicine company focused on treating neurological diseases. This progress includes a restructuring of our operations and corresponding reduction in workforce, or the November Restructuring, designed to reduce costs and focus resources on our proprietary neurology-focused epigenetic regulation programs and adeno-associated virus, or AAV, capsid delivery technologies.
- We expect the November Restructuring to result in the elimination of approximately 162 roles in the United States, or approximately 40% of the United States workforce. We estimate that we will incur approximately $8 million to $10 million in cash-based expenses related to employee severance and notice period payments, benefits and related costs in connection with the November Restructuring. We expect that the majority of the restructuring charges will be incurred in the fourth quarter of 2023 and that the execution of the November Restructuring will be substantially complete by the second quarter of 2024. We may also incur other charges or cash expenditures not currently contemplated due to events that may occur as a result of, or associated with, the November Restructuring.
- As part of the November Restructuring, we expect to close our Brisbane, California facility in early 2024 to conserve cash resources, and we intend to transition our company headquarters to our Richmond, California facility as of January 1, 2024.

Core Preclinical Neurology Programs

Our preclinical development is focused on two innovative areas aligned with our strategic transformation: (i) development of epigenetic regulation therapies treating serious neurological diseases and (ii) discovery and development of novel engineered AAV capsids to deliver our therapies to the intended neurological targets. Indications for our preclinical programs include chronic neuropathic pain and prion disease.

The cornerstones of our portfolio of epigenetic regulation therapies treating neurological diseases are Nav1.7 and prion disease. The Nav1.7 pathway to potentially treat chronic neuropathic pain has been identified as our flagship program in our wholly owned neurology pipeline, with an investigational new drug application, or IND, submission expected in 2024. The first data from this program was presented in a platform presentation at the American Society for Cell and Gene Therapy (ASGCT) 26th Annual Meeting in May 2023. The data demonstrated potent and specific repression of Nav1.7 expression without impacting other sodium channels and that the zinc finger repressors, or ZF-Rs, were well tolerated in nonhuman primates. We have identified the human-specific lead candidate ZF-R and have found no off-target activity.

We presented updated animal model data from our wholly owned prion disease program at the Prion 2023 conference in October 2023, showing that our ZF-Rs significantly reduce expression of the prion protein in the brain, extend lifespan and limit formation of toxic prion aggregates.

We continue to make progress in developing novel engineered AAV capsids enhanced for delivery to neurological targets. We have made significant progress in identifying new, potentially transformative AAV delivery capsids that we believe may be capable of crossing the blood-brain-barrier. We presented data at ASGCT describing the identification of multiple novel AAV capsids exhibiting characteristics consistent with enhanced blood brain barrier transit. We expect to share nonhuman primate data from our capsid development efforts in early 2024.

We presented preclinical data at the 30th Annual European Society for Gene and Cell Therapy (ESGCT) Congress in October 2023 showcasing updates from our neurology epigenetic regulation programs. Data presented included an oral presentation demonstrating how zinc finger activators (ZF-As) can be designed to potentially address neurodevelopmental disorders such as autism spectrum disorder and intellectual disability. This presentation showed how ZF-As can be designed to restore normal gene and protein expression of SCN2A *in vitro* and *in vivo*. This was accompanied by a poster presentation demonstrating Shank3 gene activation, mediated by ZF-As, as a potential therapeutic approach for Phelan-McDermid syndrome.

Clinical Programs

Fabry Disease

- Since our last update in August 2023, an additional three patients have been dosed in the Phase 1/2 STAAR study of isaralgagene civaparvovec, our investigational gene therapy for the treatment of Fabry disease, resulting in a total of 25 patients dosed to date, which includes 14 at the planned Phase 3 dose of $5x10^{13}$ vg/kg.
- All subjects dosed to date continue to demonstrate sustained, elevated α-Gal A levels, with 12 patients having achieved at least one year of follow-up and the longest treated patient having now achieved three years of follow-up. Additionally, all 11 patients who were withdrawn from enzyme replacement therapy, or ERT, remain off ERT, for up to 24 months for the longest withdrawn patient. Treated patients continue to report improvements in their quality of life, some even over and above the benefits they were experiencing on ERT.
- We are no longer enrolling additional patients in this study at this time, as we believe we have already successfully enrolled sufficient patients to provide a preliminary assessment of efficacy and safety. We expect to complete the dosing of remaining enrolled patients in the Phase 1/2 study in the first half of 2024. We expect to present updated clinical data from the Phase 1/2 STAAR study at a medical meeting in early 2024.
- In October 2023, we received U.S. FDA Regenerative Medicine Advanced Therapy (RMAT) Designation for isaralgagene civaparvovec. U.S. RMAT Designation aims to facilitate the development and expedite the review of new potential therapeutics that are intended to treat serious or life-threatening conditions and that demonstrate the potential to address unmet medical needs. Companies granted this designation are given the opportunity for more frequent interactions with the FDA. These clinical programs may also be eligible to apply for Accelerated Approval and Priority Review if relevant criteria are met. The FDA has previously granted Fast Track Designation and Orphan Drug Designation to isaralgagene civaparvovec.
- We are actively seeking a potential collaboration partner for our Fabry disease program. While productive discussions with the FDA continue regarding a potential Phase 3 trial design, we have decided to defer new investments in Phase 3 planning activities until we are able to successfully secure a collaboration partner or financing to fund a potential Phase 3 trial.

Renal Transplant Rejection

- Since our last update in August 2023, we dosed the first patient at the second dose level in the Phase 1/2 STEADFAST study evaluating TX200, our wholly-owned autologous CAR-Treg cell therapy candidate for renal transplant rejection. The product candidate continues to be generally well tolerated in all four patients dosed to date.
- We have received all necessary regulatory and ethics approvals for an accelerated dose escalation protocol from European regulatory authorities that allows dosing to potentially advance more quickly through the cohorts, and which also allows for a new and highest fourth dose cohort, compared to the three cohorts in the previously approved study protocol. The new, fourth cohort dose will be 18-fold higher than the first cohort starting dose.
- We have completed manufacturing of the dose for the patient in the third cohort, who recently received a kidney transplant. Dosing of this fifth patient is expected in the fourth quarter of 2023, pending approval to move to the third cohort from the Safety Monitoring Committee.
- We have also completed manufacturing of the dose for the first patient in the fourth and highest dose cohort, who recently received a kidney transplant. Dosing of this sixth patient is expected in January 2024, pending approval to move to the fourth cohort from the Safety Monitoring Committee. Dosing of this patient on the expected timeline would represent an acceleration of 18 months compared to the dosing timeline under the previously approved study protocol.

- We are actively seeking a potential collaboration partner or direct external investment in our CAR-Treg cell therapy programs. We plan to provide an update on these efforts in the first quarter of 2024. We have decided to defer new investments in these programs until we are able to successfully secure a collaboration partner or external investment.

Partnered Programs

Hemophilia A

- The Phase 3 AFFINE trial of giroctocogene fitelparvovec, an investigational gene therapy we are developing with Pfizer Inc., or Pfizer, for patients with moderately severe to severe hemophilia A, continues to progress. Dosing of all patients in the trial is now complete.
- A pivotal readout is expected in the middle of 2024, with Pfizer anticipating submitting a biologics license application and a marketing authorization application in the second half of 2024 if the pivotal readout is supportive.
- We and Pfizer plan to present updated data from the Phase 1/2 ALTA study of giroctocogene fitelparvovec via an oral presentation at the 65th American Society for Hematology Annual Meeting and Exposition on December 11, 2023.
- We are eligible to earn from Pfizer up to $220.0 million in milestone payments upon the achievement of certain regulatory and commercial milestones for giroctocogene fitelparvovec and product royalties of 14% - 20% if giroctocogene fitelparvovec is approved and commercialized.

C9ORF

- In October 2023, Pfizer notified us that it had assigned to Alexion, AstraZeneca Rare Disease, the collaboration and license agreement between Sangamo and Pfizer for the development and commercialization of potential gene therapy products that use zinc finger transcriptional regulators, or ZF-TRs, to treat amyotrophic lateral sclerosis and frontotemporal lobar degeneration linked to mutations of the *C9ORF72* gene.

Prevail Therapeutics

- In July 2023, we entered into a research evaluation and option agreement with Prevail Therapeutics, or Prevail, a wholly owned subsidiary of Eli Lilly and Company, which granted Prevail rights to evaluate certain proprietary engineered cerebrospinal fluid, or CSF, -administered AAV capsids developed by us. Under the agreement, Prevail has an option to obtain an exclusive license to use the capsids for certain neurological targets. If Prevail exercises its option for a target, Prevail would lead and fund all further research, development, manufacturing and commercialization of Prevail products incorporating the licensed capsids for that target.

Chroma Medicine

- In July 2023, we entered into a research evaluation, option and license agreement with Chroma Medicine, or Chroma, to develop epigenetic medicines leveraging our zinc finger proteins, or ZFPs, for sequence-specific DNA recognition of targets outside of the central nervous system. If Chroma exercises its option for a target, Chroma would lead and fund all further research, development, manufacturing, and commercialization of Chroma products incorporating the licensed Sangamo ZFPs for that target.

Collaborations

Our multiple collaborations with biopharmaceutical companies bring us important financial and strategic benefits and reinforce the potential of our research and development efforts and our zinc finger, or ZF, technology platform. They leverage our collaborators' therapeutic and clinical expertise and commercial resources with the goal of bringing our medicines more rapidly to patients. We believe these collaborations reflect the value of our ZF technology and AAV capsid engineering platforms and will potentially expand the addressable markets of our product candidates. To date, we have received approximately $817.0 million in upfront licensing fees, milestone payments and proceeds from sale of our common stock to collaborators and have the opportunity to earn up to $1.9 billion in potential future milestone payments and exercise fees from our active collaborations and research evaluation and option agreements, assuming all options are exercised and targets are selected, in addition to potential product royalties.

Going Concern

Our current operating plan, our cash, cash equivalents and marketable securities as of September 30, 2023, in combination with the cost savings expected from the restructuring, workforce reduction and other potential cost reductions, are expected to allow us to meet our liquidity requirements only into the third quarter of 2024. Our history of significant losses, negative cash flows from operations, limited liquidity resources currently on hand and dependence on our ability to obtain

additional financing to fund our operations after the current resources are exhausted, about which there can be no certainty, have resulted in management's assessment that there is substantial doubt about our ability to continue to operate as a going concern for at least the next 12 months from the date the Condensed Consolidated Financial Statements included in this Quarterly Report on Form 10-Q are issued. Our ability to continue to operate as a going concern is dependent upon our ability to raise substantial additional capital to fund our operations and support our research and development endeavors. In this regard, we are actively seeking substantial additional capital, including through public or private equity or debt financing, royalty financing or other sources, such as strategic collaborations and other direct investments in our programs. However, additional capital may not be available to us on a timely basis, on terms that are acceptable or at all. In particular, the perception of our ability to continue to operate as a going concern may make it more difficult to obtain financing for the continuation of our operations, particularly in light of currently challenging macroeconomic and market conditions. Further, we may be unable to attract new investments as a result of the speculative nature of our newly reprioritized core neurology preclinical programs. If adequate funds are not available to us on a timely basis, or at all, we will be required to take additional actions to address our liquidity needs, including additional cost reduction measures such as further reducing operating expenses and delaying, reducing the scope of, discontinuing or altering our research and development activities, which would have a material adverse effect on our business and prospects, or we may be required to cease operations entirely, liquidate all or a portion of our assets, and/or or seek protection under applicable bankruptcy laws, and you may lose all or part of your investment.

Manufacturing & Process Development

In connection with the November Restructuring and the anticipated closure of our Brisbane, California facility in early 2024, we now expect to be substantially reliant on external partners to manufacture clinical supply for our neurology portfolio. We are retaining our analytical and process development capabilities at our Richmond, California facility. We continue to operate a cell therapy manufacturing facility in Valbonne, France.

Macroeconomic Conditions

Our business and operations and those of our collaborators may continue to be affected by financial instability and a general decline in economic conditions in the United States and other countries caused by political instability and conflict, including the ongoing conflict between Russia and Ukraine and conflicts in the Middle East, and economic or financial challenges caused by current and potential future bank failures or by general health crises such as the COVID-19 pandemic, which have led to market disruptions, including significant volatility in commodity prices, credit and capital markets instability, including disruptions in access to bank deposits and lending commitments, supply chain interruptions, rising interest rates and global inflationary pressures. These macroeconomic factors could materially and adversely affect our ability to continue to operate as a going concern and could otherwise have a material adverse effect on our business, operations, operating results and financial condition as well as the price of our common stock. In particular, our ability to raise the substantial additional capital we need in order to fund our business and to continue to operate as a going concern may be adversely impacted by these macroeconomic factors, and we cannot be certain that we will be able to obtain financing on terms acceptable to us, or at all.

Certain Components of Results of Operations

Our revenues have consisted primarily of revenues from upfront licensing fees, reimbursements for research services, milestone achievements and research grant funding. We expect revenues to continue to fluctuate from period to period and there can be no assurance that new collaborations or partner reimbursements will continue beyond their initial terms or that we are able to meet the milestones specified in these agreements.

We have incurred net losses since inception and expect to incur losses for at least the next several years as we continue our research and development activities. To date, we have funded our operations primarily through the issuance of equity securities and revenues from collaborations and research grants.

Although we expect research and development expenses to decrease in the near-term in connection with the April and November Restructurings, we expect to continue to devote substantial resources to research and development in the future and expect research and development expenses to increase in the next several years if we are successful in advancing our product candidates from research stage through clinical trials. Pursuant to the terms of our termination and transition agreement with Sanofi S.A., or Sanofi, certain expenses related to research and development activities may be reimbursed to us. Any reimbursement funds to be received from Sanofi will decrease our research and development expense.

General and administrative expenses consist primarily of salaries and personnel related expenses for executive, finance and administrative personnel, stock-based compensation expense, professional fees, allocated facilities expenses, patent prosecution expenses and other general corporate expenses. Although we expect general and administrative expenses to decrease in the near-term in connection with the April and November Restructurings, we expect the growth of our business to require increased general and administrative expenses as we continue to advance our product candidates into and through the clinic.

Critical Accounting Policies and Estimates

Our Condensed Consolidated Financial Statements and the related disclosures have been prepared in accordance with generally accepted accounting principles in the United States. The preparation of these Condensed Consolidated Financial Statements requires us to make estimates, assumptions and judgments that affect the reported amounts in our Condensed Consolidated Financial Statements and accompanying notes. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions. We believe the following policies to be the most critical to an understanding of our financial condition and results of operations because they require us to make estimates, assumptions and judgments about matters that are inherently uncertain.

We believe our critical accounting policies and estimates relating to revenue recognition and valuation of long-lived assets including goodwill and indefinite-lived intangible assets are the most significant estimates and assumptions used in the preparation of our Condensed Consolidated Financial Statements. See Note 1 – *Organization, Basis of Presentation and Summary of Significant Accounting Policies* in the accompanying notes to the Condensed Consolidated Financial Statements included in Part I, Item 1 of this Quarterly Report on Form 10-Q.

There have been no significant changes in our critical accounting policies and estimates during the three and nine months ended September 30, 2023, as compared to the critical accounting policies and estimates disclosed in "Management's Discussion and Analysis of Financial Condition and Results of Operations" included in Part II, Item 7 of the 2022 Annual Report.

Results of Operations for the Three and Nine Months Ended September 30, 2023 and 2022

Revenues

	Three Months Ended September 30, (in thousands, except percentage values)				Nine Months Ended September 30, (in thousands, except percentage values)			
	2023	2022	Change	%	2023	2022	Change	%
Revenues	$ 9,398	$ 26,460	$ (17,062)	(64%)	$ 174,190	$ 84,069	$ 90,121	107%

Revenues primarily consisted of amounts earned from our collaboration agreements. We anticipate revenues in the future will be derived primarily from our collaboration agreements. The terminations of our collaboration agreements with Biogen MA, Inc. and Biogen International GmbH, which we refer to together as Biogen, and Novartis Institutes for BioMedical Research, Inc., or Novartis, became effective in June 2023, following which we are not entitled to any further milestone payments or royalties from either Biogen or Novartis, nor does either Biogen or Novartis have any further obligations to develop or to reimburse the costs of any of the programs previously subject to the Biogen and Novartis collaborations.

The decrease of $17.1 million in revenues for the three months ended September 30, 2023, compared to the same period in 2022, was primarily attributed to decreases of $9.6 million and $9.1 million in revenue relating to our collaboration agreements with Novartis and Biogen, respectively, due to the termination of collaboration agreements in June 2023, and a decrease of $1.4 million in revenue relating to our collaboration agreement with Kite Pharma, Inc., a Gilead Sciences, Inc. subsidiary, or Kite. These decreases were partially offset by an increase of $3.0 million in revenues from other licensing agreements.

The increase of $90.1 million in revenues for the nine months ended September 30, 2023, compared to the same period in 2022, was primarily attributed to:

- an increase of $104.2 million in revenue relating to our collaboration agreement with Biogen, primarily due to the impact of termination of the collaboration agreement, which resulted in an increase in the measure of proportional cumulative performance;
- an increase of $3.1 million in revenue relating to our license agreement with Sigma-Aldrich Corporation; and
- an increase of $3.2 million in revenues from other licensing agreements.

These increases were partially offset by a decrease of $17.3 million in revenue relating to our collaboration agreement with Novartis and a decrease of $3.3 million in revenue relating to our collaboration agreement with Sanofi, due to the terminations of such collaboration agreements in June 2023 and June 2022, respectively.

Operating expenses

	Three Months Ended September 30, (in thousands, except percentage values)				Nine Months Ended September 30, (in thousands, except percentage values)			
	2023	2022	Change	%	2023	2022	Change	%
Operating expenses:								
Research and development	$ 57,089	$ 65,116	$ (8,027)	(12%)	$ 183,351	$ 183,719	$ (368)	—%
General and administrative	13,918	16,238	(2,320)	(14%)	48,068	46,239	1,829	4%
Impairment of goodwill and indefinite-lived intangible assets	—	—	—	—	89,485	—	89,485	100%
Impairment of long-lived assets	44,799	—	44,799	100%	65,232	—	65,232	100%
Total operating expenses	$ 115,806	$ 81,354	$ 34,452	42%	$ 386,136	$ 229,958	$ 156,178	68%

Research and Development Expenses

Research and development expenses consisted primarily of compensation related expenses, including restructuring, stock-based compensation, laboratory supplies, preclinical and clinical studies, manufacturing clinical supply, contracted research, and allocated facilities and information technology expenses.

The decrease of $8.0 million in research and development expenses for the three months ended September 30, 2023, compared to the same period in 2022, was primarily attributable to lower compensation and other personnel costs mainly due to lower headcount as a result of restructuring of operations and corresponding reduction in workforce announced in April 2023, or the April Restructuring, and lower manufacturing and lab supply expenses primarily related to termination of collaboration agreements with Biogen and Novartis, and deferral and reprioritization of certain programs. These decreases were partially offset by higher depreciation expense. Stock-based compensation expense included in research and development expenses was $3.2 million and $4.4 million for the three months ended September 30, 2023 and 2022, respectively.

The decrease of $0.4 million in research and development expenses for the nine months ended September 30, 2023, compared to the same period in 2022, was primarily attributable to lower manufacturing and lab supply expenses due to deferral and reprioritization of certain programs, termination of collaboration agreements with Biogen and Novartis, and lower compensation and other personnel costs mainly due to lower headcount as a result of the April Restructuring. These decreases were partially offset by higher facilities and infrastructure-related costs including depreciation expense, restructuring charges related to the April Restructuring, and higher external expenses as we advance our clinical and preclinical pipeline. Stock-based compensation expense included in research and development expenses was $12.0 million and $13.7 million for the nine months ended September 30, 2023 and 2022, respectively.

We expect to continue to devote substantial resources to research and development in the future. While we anticipate that our research and development expenses will decrease in the near-term in connection with the April and November Restructurings and the related reprioritization of certain programs and deferral of certain new investments, we ultimately expect research and development expenses to increase in the next several years if we are successful in advancing our clinical programs and if we are able to progress our preclinical product candidates into clinical trials and/or if we are successful in securing new collaborations or other capital necessary to advance our clinical programs.

The length of time required to complete our development programs and our development costs for those programs may be impacted by the results of preclinical testing, scope and timing of enrollment in clinical trials for our product candidates, our decisions to pursue development programs in other therapeutic areas, whether we pursue development of our product candidates with a partner or collaborator or independently and our ability to secure the necessary funding to progress the development of our programs. For example, our current focus is on our core neurology preclinical program, and we do not yet know whether and to what extent we will progress any resulting product candidates from our preclinical program into the clinic and in what therapeutic areas. In this regard, in connection with the April and November Restructurings, we have paused further development of certain preclinical programs following conclusion of collaborations with Biogen and Novartis and are deferring new investments in Phase 3 planning activities for our Fabry disease gene therapy program and in our CAR-Treg cell therapy programs until we secure a collaboration partner or external investment. We are actively seeking collaboration partners or a direct external investment, as applicable, to progress our Fabry and CAR-Treg programs. Furthermore, the scope and number of clinical trials required to obtain regulatory approval for each pursued therapeutic area is subject to the input of the applicable regulatory authorities, and we have not yet sought such input for all potential therapeutic areas that we may elect to pursue, and even after having given such input, applicable regulatory authorities may subsequently require additional clinical studies prior to granting regulatory approval based on new data generated by us or other companies, or for other reasons outside of our control. As a

condition to any regulatory approval, we may also be subject to post-marketing development commitments, including additional clinical trial requirements. As a result of the uncertainties discussed above, we are unable to determine the duration of or complete costs associated with our development programs.

Our potential therapeutic products are subject to a lengthy and uncertain regulatory process that may not result in our receipt of any necessary regulatory approvals. Failure to receive the necessary regulatory approvals would prevent us from commercializing the product candidates affected. In addition, clinical trials of our product candidates may fail to demonstrate safety and efficacy, which could prevent or significantly delay regulatory approval. A discussion of the risks and uncertainties with respect to our research and development activities, including completing the development of our product candidates, and the consequences to our business, financial position and growth prospects can be found in "Risk Factors" in Part I, Item 1A of the 2022 Annual Report, as supplemented by the risks described under "Risk Factors" in Part II, Item 1A of this Quarterly Report on Form 10-Q.

General and Administrative Expenses

General and administrative expenses consist primarily of compensation-related expenses including restructuring, stock-based compensation for executive, legal, finance and administrative personnel, professional fees, facilities and information technology expenses, and other general corporate expenses.

The decrease of $2.3 million in general and administrative expenses for the three months ended September 30, 2023, compared to the same period in 2022, was primarily attributable to lower compensation and other personnel costs mainly due to lower headcount as a result of the April Restructuring. Stock-based compensation expense included in general and administrative expenses was $3.0 million and $3.4 million for the three months ended September 30, 2023 and 2022, respectively.

The increase of $1.8 million in general and administrative expenses for the nine months ended September 30, 2023, compared to the same period in 2022, was primarily attributable to Biogen contract cost asset amortization primarily driven by a notification of termination of the collaboration agreement, higher external professional service costs, and restructuring charges related to the April Restructuring. These increases were partially offset by lower compensation and other personnel costs due to lower headcount as a result of the April Restructuring. Stock-based compensation expense included in general and administrative expenses was $9.3 million and $9.7 million for the nine months ended September 30, 2023 and 2022, respectively.

While we anticipate that our general and administrative expenses will decrease modestly in the near-term in connection with the April and November Restructurings, we expect higher general and administrative expenses to support the growth of the business as we continue to build out our product portfolio and advance our product candidates into the clinic.

Impairment of Goodwill, Indefinite-lived Intangible Assets and Other Long-lived Assets

During the three and nine months ended September 30, 2023, we recognized impairment charges of $44.8 million and $154.7 million, respectively. During the nine months ended September 30, 2023, we experienced a sustained decline in our stock price and related market capitalization, our collaboration agreements with Biogen and Novartis were terminated, we initiated actions including seeking external financing and deferral and reprioritization of certain research and development programs, and equity values in the biotechnology industry continued to decline. As a result of these factors, we concluded our goodwill, indefinite-lived intangible asset, and long-lived assets, primarily comprising right-of-use assets, related leasehold improvements and construction-in-progress, and manufacturing and laboratory equipment, were impaired. Based on our analyses, we recognized a pre-tax goodwill impairment charge of $38.1 million, a pre-tax indefinite-lived intangible asset impairment charge of $51.3 million along with the income tax benefit from the reduction of the associated deferred tax liability of $6.3 million, and a pre-tax long-lived assets impairment charge of $65.2 million during the nine months ended September 30, 2023.

For more information see Note 6 – *Impairment of Goodwill, Indefinite-lived Intangible Assets and Other Long-lived Assets* in the accompanying notes to the Condensed Consolidated Financial Statements included in Part I, Item 1 of this Quarterly Report on Form 10-Q.

Interest and other income, net

Interest and other income, net was $3.5 million and $1.8 million for the three months ended September 30, 2023 and 2022, respectively. The increase of $1.7 million compared to the same period in 2022 was primarily driven by an increase of $1.3 million in research tax credits and by $0.8 million related to fluctuations in foreign currency exchange rates. These increases were partially offset by $0.4 million of impairment charges related to marketable securities which we determined we will be required to sell before recovery of their amortized cost basis.

Interest and other income, net was $9.6 million and $5.8 million for the nine months ended September 30, 2023 and 2022, respectively. The increase of $3.9 million compared to the same period in 2022 was primarily driven by an increase of $3.7 million in interest income reflecting increase in market interest rates, $2.6 million related to fluctuations in foreign currency

exchange rates, and $1.0 million in research tax credits. These increases were partially offset by a $3.0 million benefit received in 2022 from Employee Retention Credit under the Coronavirus Aid, Relief, and Economic Security Act and by $0.4 million of impairment charges related to marketable securities which we determined we will be required to sell before recovery of their amortized cost basis.

Income tax expense (benefit)

The income tax expense was $1.3 million and income tax benefit was $4.8 million during the three and nine months ended September 30, 2023, respectively, and the income tax expense was $0.1 million and $0.2 million for the three and nine months ended September 30, 2022, respectively. The increase for the three months ended September 30, 2023 compared to the same period in 2022 was primarily driven by the valuation allowance recorded for Sangamo United Kingdom deferred tax assets during the three months ended September 30, 2023 as we determined that it is not more likely that the deferred tax asset will be realized. The income tax benefit for the nine months ended September 30, 2023, compared to the same period in 2022, was primarily driven by the reduction of the deferred tax liability due to the impairment of the associated indefinite-lived intangible asset.

Liquidity and Capital Resources

Liquidity

Since inception, we have incurred significant net losses, and we have funded our operations primarily through the issuance of equity securities, payments from corporate collaborators and strategic partners and research grants.

As of September 30, 2023, we had cash, cash equivalents, and marketable securities totaling $132.1 million, compared to $307.5 million as of December 31, 2022. Our most significant use of capital during the quarter was for employee compensation and external research and development expenses, such as manufacturing, clinical trials and preclinical activity related to our therapeutic programs. Our cash and investment balances are held in a variety of interest-bearing instruments, including U.S. government-sponsored entity debt securities, commercial paper securities, money market funds, corporate debt securities, asset-backed securities and certificates of deposit. Cash in excess of immediate requirements is invested in accordance with our investment policy with a view toward capital preservation and liquidity.

In August 2020, we entered into an Open Market Sale Agreement℠, or the sales agreement, with Jefferies LLC, providing for the sale of up to $150.0 million of our common stock from time to time in "at-the-market" offerings under an existing shelf registration statement. In December 2022, we entered into Amendment No. 2 to the Open Market Sale Agreement℠, which increased the aggregate offering price under the sales agreement by an additional $175.0 million. Approximately $194.5 million remained available under the sales agreement as of September 30, 2023. No shares were sold during the three months ended September 30, 2023, and we sold 8,249,261 shares of our common stock for net proceeds of approximately $15.1 million during the nine months ended September 30, 2023.

Under Accounting Standard Codification Topic 205-40, Presentation of Financial Statements—Going Concern, or ASC Topic 205-40, we have the responsibility to evaluate whether conditions and/or events raise substantial doubt about our ability to meet our future financial obligations as they become due within one year after the date that the Condensed Consolidated Financial Statements included in this Quarterly Report on Form 10-Q are issued. As required under ASC Topic 205-40, management's evaluation should initially not take into consideration the potential mitigating effects of management's plans that have not been fully implemented as of the date the Condensed Consolidated Financial Statements are issued. When substantial doubt exists, management evaluates whether the mitigating effects of its plans sufficiently alleviate the substantial doubt about the company's ability to continue as a going concern. The mitigating effects of management's plans, however, are only considered if both (i) it is probable that the plans will be effectively implemented within one year after the date that the financial statements are issued, and (ii) it is probable that the plans, when implemented, will mitigate the relevant conditions or events that raise substantial doubt about the entity's ability to continue as a going concern within one year after the date that the financial statements are issued. Generally, to be considered probable of being effectively implemented, the plans must have been approved by the company's board of directors before the date that the financial statements are issued.

Based on our current operating plan, our cash, cash equivalents and marketable securities as of September 30, 2023, in combination with the cost savings expected from the restructuring, workforce reduction and other potential cost reductions, are expected to allow us to meet our liquidity requirements only into the third quarter of 2024. Our history of significant losses, negative cash flows from operations, limited liquidity resources currently on hand and dependence on our ability to obtain additional financing to fund our operations after the current resources are exhausted, about which there can be no certainty, have resulted in management's assessment that there is substantial doubt about our ability to continue as a going concern for at least the next 12 months from the date the Condensed Consolidated Financial Statements included in this Quarterly Report on Form 10-Q are issued. Our ability to continue to operate as a going concern is dependent upon our ability to raise substantial additional capital to fund our operations and support our research and development endeavors. In this regard, we are actively seeking

substantial additional capital, including through public or private equity or debt financing, royalty financing or other sources, such as strategic collaborations and other direct investments in our programs. However, additional capital may not be available to us on a timely basis, on terms that are acceptable or at all. In particular, the perception of our ability to continue to operate as a going concern may make it more difficult to obtain financing for the continuation of our operations, particularly in light of currently challenging macroeconomic and market conditions. Further, we may be unable to attract new investments as a result of the speculative nature of our newly reprioritized core neurology preclinical programs. If adequate funds are not available to us on a timely basis, or at all, we will be required to take additional actions to address our liquidity needs, including additional cost reduction measures such as further reducing operating expenses and delaying, reducing the scope of, discontinuing or altering our research and development activities, which would have a material adverse effect on our business and prospects, or we may be required to cease operations entirely, liquidate all or a portion of our assets, and/or or seek protection under applicable bankruptcy laws, and you may lose all or part of your investment.

While we expect both the April and November Restructurings to be complete by the third quarter of 2024 and the second quarter of 2024, respectively, we may also incur other charges or cash expenditures not currently contemplated due to events that may occur as a result of, or associated with, each of the restructurings. In addition, we may not achieve the expected benefits of these cost reduction measures and other cost reduction plans on the anticipated timeline, or at all, or we may use our available capital more quickly than we expect, which could otherwise accelerate our liquidity needs and could force us to further curtail or suspend, or entirely cease, our operations. Moreover, we rely in part on our collaboration partners to provide funding for and otherwise advance our preclinical and clinical programs. However, in June 2022, our collaboration agreement with Sanofi terminated, and in June 2023 our collaboration agreements with Biogen and Novartis terminated. While we may identify new collaboration partners who can progress some of the programs that were the subject of these collaborations as well as our Fabry disease gene therapy program and our CAR-Treg cell therapy programs, we have not yet been, and may never be, successful in doing so in a timely manner, on acceptable terms or at all, and we may otherwise fail to raise sufficient additional capital in order to progress these programs ourselves, in which case, we will not receive any return on our investments in these programs. In any event, we need substantial additional funding in order to progress the programs that were the subject of these collaborations as well as our Fabry disease and CAR-Treg programs, and to otherwise execute on our current operating plan. If we raise additional capital through public or private equity offerings, including sales pursuant to our at-the-market offering program with Jefferies LLC, the ownership interest of our existing stockholders will be diluted, and such dilution may be substantial given our current stock price decline, and the terms of any new equity securities may have a preference over, and include rights superior to, our common stock. If we raise additional capital through royalty financings or other collaborations, strategic alliances or licensing arrangements with third parties, we may need to relinquish certain valuable rights to our product candidates, technologies, future revenue streams or research programs or grant licenses on terms that may not be favorable. If we raise additional capital through debt financing, we may be subject to specified financial covenants or covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or pursuing certain transactions, any of which could restrict our ability to commercialize our product candidates or operate as a business.

In addition, as we focus our efforts on proprietary human therapeutics, we will need to seek regulatory approvals of our product candidates from the FDA or other comparable foreign regulatory authorities, a process that could cost in excess of hundreds of millions of dollars per product. We may experience difficulties in accessing the capital markets due to external factors beyond our control, such as volatility in the equity markets for emerging biotechnology companies and general economic and market conditions both in the United States and abroad. In particular, our ability to raise the substantial additional capital we need in order to fund our business may be adversely impacted by global economic conditions and disruptions to and volatility in the credit and financial markets in the United States and worldwide, such as has been experienced recently due in part to, among other things, the impacts of the COVID-19 pandemic, the ongoing conflict between Russia and Ukraine and conflicts in the Middle East, and disruptions in access to bank deposits and lending commitments due to bank failure. We cannot be certain that we will be able to obtain financing on terms acceptable to us, or at all.

Cash Flows

Operating activities

Net cash used in operating activities was $174.3 million for the nine months ended September 30, 2023, primarily due to:

- a net loss of $197.5 million, adjusted for non-cash goodwill, indefinite-lived intangible assets, and long-lived asset impairment charges of $154.7 million, other non-cash expenses related to stock-based compensation of $21.3 million, depreciation and amortization of $13.2 million, and amortization of operating lease right-of-use assets of $5.9 million, offset by income tax benefit of $6.2 million related to reversal of the deferred tax liability as a result of impairment on the associated indefinite-lived intangible assets, accretion of discounts and impairment of marketable securities of $2.0 million, and other non-cash adjustments of $1.1 million; and

- a decrease in deferred revenues of $159.7 million, mainly attributed to the impact of the termination and related contract modification of our collaboration agreement with Biogen and a change in estimate for our collaboration agreement with Kite, a decrease in accounts payable and other accrued liabilities by $5.2 million, a decrease in accrued compensation and employee benefits by $4.2 million, and a decrease in lease liabilities by $3.7 million. These were partially offset by decrease in prepaid expenses and other assets by $5.2 million, and a decrease in accounts receivable by $2.5 million.

Net cash used in operating activities was $166.6 million for the nine months ended September 30, 2022, primarily reflecting our net loss of $140.3 million, a decrease in deferred revenues of $65.0 million, an increase in prepaid expenses and other assets by $5.8 million, and a decrease in lease liabilities by $3.3 million. These decreases were partially offset by $38.2 million of non-cash expenses related to stock-based compensation, depreciation and amortization, amortization of premium on marketable securities, and amortization of operating lease right-of-use assets and a $9.4 million increase in accounts payable and other accrued liabilities.

Investing activities

Net cash provided by investing activities was $115.8 million for the nine months ended September 30, 2023, related to maturities of marketable securities of $193.9 million, partially offset by purchases of marketable securities of $59.6 million, and purchases of property and equipment of $18.5 million.

Net cash provided by investing activities was $16.7 million for the nine months ended September 30, 2022, related to maturities of marketable securities of $255.0 million, partially offset by purchases of marketable securities of $225.6 million, and $12.7 million from purchases of property and equipment.

Financing activities

Net cash provided by financing activities was $14.4 million for the nine months ended September 30, 2023, related to $15.1 million of proceeds from the at-the-market offering, net of offering expenses of $0.4 million, and proceeds from purchases of common stock under the employee stock purchase plan of $0.7 million, partially offset by taxes paid related to net share settlement of equity awards of $1.4 million.

Net cash provided by financing activities was $65.1 million for the nine months ended September 30, 2022, mostly related to $67.5 million of proceeds from the at-the-market offering, net of offering expenses of $1.7 million, and proceeds from purchases of common stock under the employee stock purchase plan of $1.1 million, partially offset by taxes paid related to net share settlement of equity awards of $2.0 million.

Operating Capital and Capital Expenditure Requirements

We anticipate continuing to incur operating losses for at least the next several years and need to raise substantial additional capital. The effects of the current macroeconomic environment, including the effects of war in Ukraine and conflicts in the Middle East, financial and liquidity challenges associated with current and potential future bank failures, inflation, climate change, rising interest rates and other economic uncertainty and volatility, has resulted and may continue to result in significant disruption of global financial markets, which could impair our ability to access capital on terms that are acceptable or at all, and in turn could negatively affect our liquidity and our ability to continue to operate as a going concern. Future capital requirements beyond the third quarter of 2024, the period until which we expect our existing cash and cash equivalents, in combination with the cost savings expected from the restructuring, workforce reduction and other potential cost reductions, will be sufficient to fund our planned operations, will be substantial, and we need to raise substantial additional capital to continue to operate as a going concern and to fund the development, manufacturing and potential commercialization of our product candidates. In this regard, we are actively seeking substantial additional capital, including through public or private equity or debt financings, royalty financings or other sources, such as strategic collaborations. However, additional capital may not be available to us, on terms that are acceptable or at all. If adequate funds are not available to us on a timely basis, or at all, we will be required to take additional actions to address our liquidity needs, including additional cost reduction measures such as further reducing operating expenses and delaying, reducing the scope of, discontinuing or altering our research and development activities, which would have a material adverse effect on our business and prospects, or we may be required to cease operations entirely, liquidate all or a portion of our assets, and/or or seek protection under applicable bankruptcy laws, and you may lose all or part of your investment.

As we focus our efforts on proprietary human therapeutics, we will need to seek FDA approvals of our product candidates, a process that could cost in excess of hundreds of millions of dollars per product. Our future capital requirements will depend on many forward-looking factors, including the following:

- the results of preclinical testing of our early-stage core neurology program product candidates;
- the initiation, progress, timing and completion of clinical trials for our product candidates and potential product candidates;

- the outcome, timing and cost of regulatory approvals;
- the success of our collaboration agreements;
- delays that may be caused by changing regulatory requirements;
- the number of product candidates that we pursue;
- the costs involved in filing and prosecuting patent applications and enforcing and defending patent claims;
- the timing and terms of future in-licensing and out-licensing transactions;
- the cost and timing of establishing sales, marketing, manufacturing and distribution capabilities;
- the cost of procuring clinical and commercial supplies of our product candidates;
- the extent to which we acquire or invest in businesses, products or technologies, including the costs associated with such acquisitions and investments; and
- the costs of potential disputes and litigation.

Contractual Obligations

Our future minimum contractual obligations as of December 31, 2022 were reported in the 2022 Annual Report. During the nine months ended September 30, 2023, there have been no other material changes outside the ordinary course of our business from the contractual obligations previously disclosed in our 2022 Annual Report.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Our exposure to market risk relates to our cash, cash equivalents, and marketable securities. The goals of our investment policy are preservation of capital, fulfillment of liquidity needs and capturing a market rate of return based on our investment policy parameters and market conditions. We select investments that maximize interest income to the extent possible within these guidelines. To achieve our goals, we maintain a portfolio of cash equivalents and investments in securities of high credit quality and with varying maturities to match projected cash needs.

The securities in our investment portfolio are not leveraged and are classified as available-for-sale. The majority of these available-for-sale securities are short-term in nature and subject to minimal interest rate risk. Our investments currently consist of U.S. government-sponsored entity debt securities, commercial paper securities, corporate debt securities, asset-backed securities and certificates of deposit. Our investment policy, approved by our Board of Directors, limits the amount we may invest in any one type of investment issuer, thereby reducing credit risk concentrations. All investments are carried at market value, which approximates cost. We do not use derivative financial instruments in our investment portfolio. Our market risks at September 30, 2023 have not changed materially from those discussed in Item 7A of our 2022 Annual Report.

Foreign Currency Exchange Risk

We have operations in the United States as well as in Europe. The functional currency of each foreign subsidiary is the local currency. We are exposed to foreign currency risk, primarily through operations of our subsidiaries in Europe which conduct business primarily in Euros. We record gains and losses within our stockholders' equity due to the translation of our subsidiaries' financial statements into U.S. dollars. Our foreign currency exchange risk at September 30, 2023 has not changed materially from that discussed in Item 7A of our 2022 Annual Report.

ITEM 4. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures that are designed to provide reasonable assurance that information required to be disclosed in our Exchange Act reports 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 principal executive officer and principal financial officer, as appropriate, to allow timely decisions regarding required disclosure.

Under the supervision of our principal executive officer and principal financial officer, we evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) of the Exchange Act) as of September 30, 2023. Based on that evaluation, as of September 30, 2023, our principal executive officer and principal financial officer have concluded that our disclosure controls and procedures were effective at the reasonable assurance level.

Inherent Limitations on Controls and Procedures

Our management, including the principal executive officer and principal financial officer, does not expect that our disclosure controls and procedures and our internal control over financial reporting will prevent all error and all fraud. A control system, no matter how well designed and operated, can only provide reasonable assurances that the objectives of the control system are met. The design of a control system reflects resource constraints; the benefits of controls must be considered relative to their costs. Because there are inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, for our company have been or will be detected. As these inherent limitations are known features of the disclosure and financial reporting processes, it is possible to design into the processes safeguards to reduce, though not eliminate, these risks. These inherent limitations include the realities that judgments in decision-making can be faulty and that breakdowns occur because of simple error or mistake. Controls can also be circumvented by the individual acts of some persons, by collusion of two or more people, or by management override of the control. The design of any system of controls is based in part upon certain assumptions about the likelihood of future events. While our disclosure controls and procedures and our internal control over financial reporting are designed to provide reasonable assurance of achieving their objectives, there can be no assurance that any design will succeed in achieving its stated goals under all future conditions. Over time, controls may become inadequate because of changes in conditions or deterioration in the degree of compliance with the policies or procedures. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

Changes in Internal Control over Financial Reporting

There have been no changes in our internal control over financial reporting that occurred during the quarter ended September 30, 2023 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

We are not party to any material pending legal proceedings. From time to time, we may be involved in legal proceedings arising in the ordinary course of business.

ITEM 1A. RISK FACTORS

Below we are providing, in supplemental form, changes to our risk factors from those previously disclosed in Part I, Item 1A of the 2022 Annual Report. Our risk factors disclosed in Part I, Item 1A of the 2022 Annual Report provide additional discussion about these supplemental risks and we encourage you to read and carefully consider the risk factors disclosed in Part I, Item 1A of the 2022 Annual Report for a more complete understanding of the risks and uncertainties material to our business.

We have historically incurred significant operating losses since inception and anticipate that we will incur continued losses for the foreseeable future.

We have a history of recurring net losses, including $197.5 million, $192.3 million and $178.3 million for the nine months ended September 30, 2023, and years ended December 31, 2022 and 2021, respectively, and we have otherwise generated operating losses since we began operations in 1995. The extent of our future losses and the timing of profitability are uncertain, and we expect to incur losses for the foreseeable future. We have been engaged in developing our ZF technology since inception, which has and will continue to require significant research and development expenditures. To date, we have generated our funding from issuance of equity securities, revenues derived from collaboration agreements, other strategic partnerships in non-therapeutic applications of our technology, federal government research grants and grants awarded by research foundations. We expect to continue to incur additional operating losses for the next several years as we continue to develop our preclinical core neurology. If the time required to generate significant product revenues and achieve profitability is longer than we currently anticipate or if we are unable to generate liquidity through equity financing or other sources of funding, we may be forced to further curtail or suspend, or entirely cease, our operations.

There is substantial doubt about our ability to continue to operate as a going concern. We need substantial additional funding to execute our operating plan and to continue to operate as a going concern. If adequate funds are not available to us on a timely basis, or at all, we will be required to take additional actions to address our liquidity needs, including additional cost reduction measures such as further reducing operating expenses and delaying, reducing the scope of, discontinuing or altering our research and development activities, which would have a material adverse effect on our business and prospects, or we may be required to cease operations entirely, liquidate all or a portion of our assets, and/or or seek protection under applicable bankruptcy laws, and you may lose all or part of your investment. Future sales and issuances of equity securities would also result in substantial dilution to our stockholders.

We have incurred significant operating losses and negative operating cash flows since inception and have not achieved profitability. We estimate that our available cash, cash equivalents and marketable securities as of September 30, 2023, in combination with the cost savings expected from the restructuring, workforce reduction and other potential cost reductions, will be sufficient to fund our planned operations only into the third quarter of 2024. Our financial position raises substantial doubt about our ability to continue to operate as a going concern. Our ability to continue to operate as a going concern is dependent upon our ability to raise substantial additional capital to fund our operations and support our research and development endeavors. In this regard, we are actively seeking substantial additional capital, including through public or private equity or debt financing, royalty financing or other sources, such as strategic collaborations and other direct investments in our programs. However, additional capital may not be available to us on a timely basis, on terms that are acceptable or at all. In particular, the perception of our ability to continue to operate as a going concern may make it more difficult to obtain financing for the continuation of our operations, particularly in light of currently challenging macroeconomic and market conditions. Further, we may be unable to attract new investments as a result of the speculative nature of our newly reprioritized core neurology preclinical programs. If adequate funds are not available to us on a timely basis, or at all, we will be required to take additional actions to address our liquidity needs, including additional cost reduction measures such as further reducing operating expenses and delaying, reducing the scope of, discontinuing or altering our research and development activities, which would have a material adverse effect on our business and prospects, or we may be required to cease operations entirely, liquidate all or a portion of our assets, and/or or seek protection under applicable bankruptcy laws, and you may lose all or part of your investment.

In this regard, in April 2023, we announced a restructuring of operations and a reduction in force, or the April Restructuring, and a significant reduction in our internal manufacturing and allogeneic research footprints in California, and in November 2023, we announced a further restructuring of operations and reduction in force, or the November Restructuring, including a strategic transformation to focus resources on our proprietary neurology-focused epigenetic regulation programs and AAV capsid delivery technology and move all U.S. operations, including our headquarters, to our Richmond, California facility. While we expect both the April and November Restructurings to be complete by the third quarter of 2024 and the second quarter

of 2024, respectively, we may also incur other charges or cash expenditures not currently contemplated due to events that may occur as a result of, or associated with, each of the restructurings. In addition, we may not achieve the expected benefits of these cost reduction measures and other cost reduction plans on the anticipated timeline, or at all, or we may use our available capital more quickly than we expect, which could otherwise accelerate our liquidity needs and could force us to further curtail or suspend, or entirely cease, our operations. Moreover, we rely in part on our collaboration partners to provide funding for and otherwise advance our preclinical and clinical programs. However, in June 2022, our collaboration agreement with Sanofi terminated, and in June 2023 our collaboration agreements with Biogen and Novartis terminated. While we may identify new collaboration partners who can progress some of the programs that were the subject of these collaborations as well as our Fabry disease gene therapy program and our CAR-Treg cell therapy programs, we have not yet been, and may never be, successful in doing so in a timely manner, on acceptable terms or at all, and we may otherwise fail to raise sufficient additional capital in order to progress these programs ourselves, in which case, we will not receive any return on our investments in these programs. In any event, we need substantial additional funding in order to progress the programs that were the subject of these collaborations as well as our Fabry disease and CAR-Treg programs, and to otherwise execute on our current operating plan.

If we raise additional capital through public or private equity offerings, including sales pursuant to our at-the-market offering program with Jefferies LLC, the ownership interest of our existing stockholders will be diluted, and such dilution may be substantial given our current stock price decline, and the terms of any new equity securities may have a preference over, and include rights superior to, our common stock. If we raise additional capital through royalty financings or other collaborations, strategic alliances or licensing arrangements with third parties, we may need to relinquish certain valuable rights to our product candidates, technologies, future revenue streams or research programs or grant licenses on terms that may not be favorable. If we raise additional capital through debt financing, we may be subject to specified financial covenants or covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or pursuing certain transactions, any of which could restrict our ability to commercialize our product candidates or operate as a business.

In addition, as we focus our efforts on proprietary human therapeutics, we will need to seek regulatory approvals of our product candidates from the FDA or other comparable foreign regulatory authorities, a process that could cost in excess of hundreds of millions of dollars per product. We may experience difficulties in accessing the capital markets due to external factors beyond our control, such as volatility in the equity markets for emerging biotechnology companies and general economic and market conditions both in the United States and abroad. In particular, our ability to raise the substantial additional capital we need in order to fund our business may be adversely impacted by global economic conditions and disruptions to and volatility in the credit and financial markets in the United States and worldwide, such as has been experienced recently due in part to, among other things, the impacts of the COVID-19 pandemic, the ongoing conflict between Russia and Ukraine and conflicts in the Middle East, and disruptions in access to bank deposits and lending commitments due to bank failure. We cannot be certain that we will be able to obtain financing on terms acceptable to us, or at all. Our failure to obtain adequate and timely funding will adversely affect our ability to continue to operate as a going concern and our ability to develop our technology and products candidates.

Unfavorable global economic conditions could have a negative impact on our operations, which could materially and adversely affect our ability to continue to operate as a going concern and otherwise have a material adverse effect on our business, financial condition, results of operations, prospects and market price of our common stock.

Financial instability and a general decline in economic conditions in the United States and other countries caused by political instability and conflict, including the ongoing conflict between Russia and Ukraine and conflicts in the Middle East, and economic or financial challenges caused by current and potential future bank failures or by general health crises such as the COVID-19 pandemic, have led to market disruptions, including significant volatility in commodity prices, credit and capital markets instability, including disruptions in access to bank deposits and lending commitments, supply chain interruptions, rising interest rates and global inflationary pressures. These macroeconomic factors could materially and adversely affect our ability to continue to operate as a going concern and other could otherwise have a material adverse effect on our business, operations, operating results and financial condition as well as the price of our common stock. For example, the recent closures of Silicon Valley Bank, or SVB, Signature Bank and First Republic Bank have resulted in broader financial institution liquidity risk and concerns. Although we were able to access all of the funds we had in deposit with SVB, future adverse developments with respect to specific financial institutions or the broader financial services industry may lead to market-wide liquidity shortages. The failure of any bank in which we deposit our funds could reduce the amount of cash we have available for our operations or delay our ability to access such funds. Any such failure may increase the possibility of a sustained deterioration of financial market liquidity, or illiquidity at clearing, cash management and/or custodial financial institutions. In the event we have a commercial relationship with a bank that has failed or is otherwise distressed, we may experience delays or other issues in meeting our financial obligations. If other banks and financial institutions fail or become insolvent in the future in response to financial conditions affecting the banking system and financial markets, our ability to access our cash and cash equivalents and investments may be threatened and our ability to raise additional capital when needed could be substantially impaired, which could have a material adverse effect on our business, operations, operating results and financial condition as well as the price of our common

stock. In particular, failure to secure any necessary financing in a timely manner and on favorable terms could require us to delay or abandon clinical development plans or we may be forced to further curtail or suspend, or entirely cease, our operations. In addition, any or all of these factors could disrupt our and our collaborators' supply chains and adversely affect our and our collaborators' ability to conduct ongoing and future clinical trials of our product candidates.

We are a biotechnology company with a reprioritized preclinical focus and with no approved products or product revenues. Our success depends substantially on clinical trial results demonstrating safety, efficacy and durability of our product candidates to the satisfaction of regulatory authorities. Obtaining positive clinical trial results and regulatory approvals is expensive, lengthy, challenging and unpredictable and may never occur for any product candidates.

We are a biotechnology company with a reprioritized preclinical focus and with no approved products or product revenues. While we and Pfizer have ongoing clinical trials evaluating product candidates that use our platform technologies in hemophilia A, Fabry disease and CAR-Treg cell therapy, we have decided to defer new investments in our Fabry disease gene therapy program and our CAR-Treg cell therapy programs until we are able to successfully secure a collaboration partner or external investment. Going forward, we expect to focus substantially all of our efforts on our core preclinical neurology programs and should we be successful in raising additional funds necessary to execute our operating plan and to continue to operate as a going concern, we anticipate initiating clinical trials in the future on our preclinical product candidates. We are and will be substantially dependent on the results of these clinical trials, and there is no guarantee that final results of clinical trials conducted on our product candidates now or in the future will demonstrate the safety and efficacy of any of our product candidates. In addition, none of our product candidates has obtained regulatory approval. Obtaining positive clinical trial results and regulatory approvals is expensive, lengthy, challenging and unpredictable and may never occur for any of our product candidates. If we fail to obtain positive clinical trial results and regulatory approvals for our product candidates, our anticipated revenues from our product candidates and our prospects for profitability would be adversely affected, which would likely cause the market price of our common stock to significantly decline.

We are early in our research and development efforts for our core preclinical neurology programs that are the current focus of our research and development efforts, all of which are still in preclinical development. We may encounter difficulties in advancing product candidates from research programs to preclinical and clinical development.

We are early in our research and development efforts for our core preclinical neurology programs that are the current focus of our research and development efforts, all of which are still in preclinical development. We have not yet demonstrated our ability to successfully commence any clinical trials of any product candidates from our core preclinical neurology programs. We intend to advance our core neurology program product candidates from research programs through preclinical development and to submit new INDs, applications for clinical trial approval and equivalent filings in other jurisdictions necessary to conduct human clinical trials evaluating our product candidates. The preparation and submission of applications to conduct clinical trials require us to conduct rigorous and time-consuming preclinical testing and studies and prepare documentation relating to, among other things, the toxicity, safety, manufacturing, chemistry and clinical protocols of our product candidates. We may experience unforeseen difficulties that could delay or otherwise prevent us from executing this strategy successfully. For example, we may encounter problems in the manufacturing of a product candidate and may fail to demonstrate consistency in the formulation of a product candidate. Our preclinical tests may produce negative or inconclusive results, which may lead us to decide, or which may lead regulators to require us, to conduct additional preclinical testing. If we cannot obtain positive results in preclinical testing, we may decide to abandon a product candidate altogether. In addition, our ability to complete and submit such applications to conduct clinical trials may depend on the support of collaborators and the timely performance of their obligations under relevant collaboration agreements. If our collaborators are not able to perform such obligations or if they choose to slow down or delay the development of a product candidate, we may not be able to submit the clinical trial applications on a timely basis or at all. Furthermore, the submission of applications to conduct clinical trials involves significant cost and labor, and we may not have sufficient resources and personnel to complete the filing of all intended applications, which may force us to scale back the number of applications or forego potential applications that we believe are promising. Any delay, suspension or reduction of our efforts to pursue our preclinical and clinical development strategy could have an adverse effect on our business and cause the market price of our common stock to decline.

We may use our financial and human resources to pursue a particular research program or product candidate and fail to capitalize on other programs or product candidates that may be more profitable or for which there is a greater likelihood of success.

We have limited resources and may forego or delay pursuit of certain research programs or product candidates that later prove to have greater commercial potential. Our resource allocation decisions may cause us to fail to capitalize on viable commercial products or profitable market opportunities or pursue collaborations rather than retain sole responsibility for development. Our current and future research and development programs for core neurology program product candidates may not yield any commercially viable products. The evaluation of the commercial potential or target market for a particular product candidate is forward-looking and based upon assumptions involving, for example and not limited to, market evolution, advances

in disease standard of care, competition and reimbursement. This reliance on assumptions means that, if our assumptions prove to be inaccurate or incomplete, we may pursue opportunities that end up having a number of competitors that are more advanced than our product candidates, or we may relinquish valuable rights to a product candidate through strategic collaboration, licensing or other royalty arrangements in cases where it would have been more advantageous for us to retain sole development and commercialization rights to such product candidate.

We have implemented several strategic decisions to reallocate resources among our various clinical and preclinical development programs, including most recently our announcement in connection with the November Restructuring that we have decided to defer new investments in our Fabry disease gene therapy program and our CAR-Treg cell therapy programs until we are able to successfully secure a collaboration partner or external investment. Although we are actively seeking collaboration partners or a direct external investment, as applicable, to progress our Fabry disease and CAR-Treg programs, there can be no assurance that such efforts will be successful in a timely manner, or at all, in which case, we will not receive any return on our investments in these programs. As part of the November Restructuring and the related strategic reprioritization, we have determined to focus substantially all of our efforts on our core preclinical neurology programs. Investment in preclinical programs is highly speculative, as it entails substantial upfront capital expenditures and significant risk that any potential product candidate will fail to demonstrate adequate effect and/or an acceptable safety profile. Previously, as part of the April Restructuring and the related strategic reprioritization, we had intended to increase our focus on preparations for a potential Phase 3 clinical trial of isaralgagene civaparvovec, our gene therapy to treat Fabry disease, the Phase 1/2 STEADFAST study evaluating TX200, our CAR-Treg cell therapy to treat patients receiving an HLA-A2 mismatched kidney from a living donor, but with the November Restructuring and the related strategic reprioritization, substantially all of our efforts are now expected to be focused solely on our core preclinical neurology programs. In 2022, we also made the strategic decision to halt further material investments in our BIVV003 SCD program beyond completion of the Phase 1/2 PRECIZN-1 study. In March 2023, Biogen and Novartis notified us of their respective terminations for convenience of our collaboration agreements with them, and in April 2023, we made the strategic decision to pause further development of the programs that were the subject of these collaborations. While we may potentially identify new collaboration partners who can progress some of the programs that were the subject of these collaborations as well as our Fabry disease and CAR-Treg programs, we may not be successful in doing so in a timely manner, on acceptable terms or at all, and we may otherwise fail to raise sufficient additional capital in order to progress these programs ourselves. As a result of these strategic decisions, we could miss valuable opportunities to capitalize on the potential of our discontinued and halted programs. We may also allocate internal resources to a product candidate in a therapeutic area in which it would have been more advantageous to enter into a collaboration or that does not prove to have viable commercial opportunities. Any failure to use our financial and human resources efficiently could harm our business and operations.

Our collaborators control certain aspects of our product development efforts, including certain of our clinical trials, which could result in unanticipated delays and other obstacles in the commercialization of our product candidates.

We depend on collaborators to design and conduct clinical trials for the product candidates that are the subject of the related collaboration agreement. As a result, these clinical trials may not be conducted in the manner or on the timeline we desire, which may negatively impact our product development efforts. For example, Pfizer is the trial sponsor of the Phase 3 AFFINE trial of giroctocogene fitelparvovec and we depended on the efforts of Pfizer to diligently seek to lift the clinical hold on the Phase 3 AFFINE trial and resume the trial. Although dosing in the AFFINE trial has now resumed, we cannot guarantee that we will not experience future delays in this trial or that the trial will be completed on the anticipated timeframe or at all.

Our lack of control over aspects of product development in our collaborations could cause delays or other difficulties in the development and commercialization of our product candidates, which may prevent us from receiving any milestone, royalty payments and other benefits under the agreement. In addition, under their respective agreements, our third-party collaborators have certain rights to terminate the agreements by providing us with advance notices, therefore, the actual milestone payments that we may receive under these agreements may be substantially lower than the full amounts provided for under these agreements. For example, in June 2022, our collaboration agreement with Sanofi terminated, and in June 2023, our collaborations with Biogen and Novartis terminated. As a result, we will not be entitled to any further milestone payments or royalties from any of Sanofi, Biogen or Novartis.

Our collaborators licensing our ZF technologies may decide to adopt alternative technologies or products or may be unable or unwilling to develop commercially viable products with our ZF technologies, which would negatively impact our revenues and our strategy to develop product candidates using ZF technologies.

Some of our ongoing collaborations leverage our ZF technology platform. These collaborators may elect to adopt alternative technologies in the future, which could decrease the value of our ZF technology platform and impede the development of product candidates using the platform. Additionally, because our collaborators are likely to be working on more than one development project, they could choose to shift their resources to projects other than those they are working on with us. If they do so, this would delay our ability to test and develop our ZF technology platform and would delay or terminate the development of our product candidates using the platform. Further, our collaborators may elect not to develop product candidates arising out of

our collaborations or not to devote sufficient resources to the development, manufacturing, marketing or sale of these product candidates. If they terminate the collaborations with us or allow them to expire, such as the terminations for convenience of our collaboration agreements with Biogen and Novartis, and we wish to continue developing the product candidates, we will be required to seek the support of other collaborators or develop the products ourselves. Particularly as a result of the November Restructuring, we do not expect to have sufficient resources and expertise internally to allow us to continue the development of these product candidates and we may not be able to identify a suitable partner or negotiate a favorable collaboration agreement to allow us to continue the development of these product candidates.

Commercialization of our technologies will depend, in part, on collaborations with other companies. If we are not able to find collaborators in the future or if our collaborators do not diligently pursue product development efforts, we may not be able to develop our technologies or product candidates, which could slow our growth and decrease the market value of our common stock.

We do not have financial resources ourselves to fully develop, obtain regulatory approval for and commercialize our product candidates. We rely significantly on our collaborations with other biopharmaceutical companies to provide funding for our research and development efforts, including preclinical studies and clinical tests, and expect to rely significantly on such collaborations to provide funding for the lengthy regulatory approval processes required to commercialize our product candidates.

For example, we have collaborations with Pfizer to develop a product candidate to treat hemophilia A and with Alexion, AstraZeneca Rare Disease to develop product candidates to treat amyotrophic lateral sclerosis and frontotemporal lobar degeneration linked to mutations of the C9ORF72 gene. Any delays to or discontinuances of these collaborations could have a material adverse effect on our business, results of operations, financial condition and prospects.

We were also party to collaboration agreements with Novartis to develop product candidates to treat certain neurodevelopment disorders, including autism and intellectual disability and with Biogen to develop product candidates to treat tauopathies including Alzheimer's disease, alpha-synuclein related diseases including Parkinson's disease and other neurological diseases. In June 2023, our collaboration agreements with Novartis and Biogen terminated. As a result of these terminations, we are no longer entitled to any milestone payments or royalties from Novartis or Biogen, and Novartis and Biogen have no further obligations to develop or to reimburse the costs of any of the programs under the applicable agreement. In April 2023, we made the strategic decision to pause further development of the programs that were the subject of these collaborations. In the future, we may identify alternative options to advance some of the programs that were subject to such agreements, including potential development internally or with a collaboration partner. However, we cannot guarantee that we will be able to successfully secure any such options, including identifying an alternative suitable collaboration partner or negotiate a favorable alternative collaboration agreement. In such case, we may be unable or unwilling to continue developing the programs subject to these collaboration agreements due to the lack of adequate capital resources or otherwise.

In June 2022, we completed the transition of the rights and obligations of Sanofi, under our prior collaboration agreement back to us. Although we expect to complete the Phase 1/2 PRECIZN-1 study of BIVV003, our product candidate to treat SCD, we cannot guarantee that we will be able to complete this study in a timely manner or at all. Also, we do not expect to make additional investments in our SCD program and, accordingly, do not plan to continue developing BIVV003 beyond completion of this study.

If we are unable to secure additional collaborations or if our collaborators are unable or unwilling to diligently advance the development, regulatory approval and commercialization of our product candidates, our growth may slow and adversely affect our ability to generate funding for development of our technologies and product candidates as well as our ability to continue to operate as a going concern, and we may be required to cease operations. For example, although we have decided to defer new investments in our Fabry disease gene therapy program and our CAR-Treg cell therapy programs until we are able to successfully secure a collaboration partner or external investment, there can be no assurance that such efforts will be successful in a timely manner, or at all, in which case, we will not receive any return on our investments in these programs and our ability to continue to operate as a going concern may be materially and adversely affected. In addition, our ongoing collaborators may sublicense or abandon development programs with little advance notice, or we may have disagreements or disputes with our collaborators, which would cause associated product development to slow or cease. In addition, the business or operations of our collaborators may change significantly through restructurings, acquisitions, other strategic transactions that may negatively impact their ability to advance our programs.

Under typical collaborations, we expect to receive revenue for the research and development of our product candidates based on achievement of specific milestones, as well as royalties based on a percentage of sales of any commercialized products. Achieving these milestones will depend, in part, on the efforts of our collaborators, which we have no control over, as well as our own efforts. In addition, business combinations, changes in a collaborator's business strategy and financial difficulties or other factors could result in that collaborator abandoning or delaying development of any product candidates covered by our collaboration agreement with that collaborator. For example, the transition back to us of the rights and obligations of Sanofi related to BIVV003 and the related termination for convenience by Sanofi of our prior collaboration agreement followed a change

in Sanofi's strategic direction to focus on allogeneic universal genomic medicine approaches rather than autologous personalized cell therapies. In addition, Novartis's and Biogen's decisions to terminate their respective collaboration agreements with us each related to a recent strategic review. Further, if we fail or any collaboration partner fails to meet specific milestones, then the collaboration agreement may be terminated, which would preclude our ability to earn any additional milestone payments under that collaboration agreement and would reduce our revenues. In addition, even if a collaboration product candidate is successfully developed and approved for marketing by relevant regulatory authorities, if sales of the commercialized product fails to meet expectations, we could receive lower royalties than expected. In any event, the milestone and royalty payment opportunities associated with our collaborations involve a substantial degree of risk to achieve and may never be received. Accordingly, investors should not assume that we will receive all of the potential milestone payments provided for under our ongoing collaborations, and it is possible that we may never receive any further significant milestone payments or any royalty payments under our collaborations.

We are substantially reliant on third parties for the manufacture of our product candidates for clinical development. If one of our third-party manufacturers fails to perform adequately or fulfill our needs, we may be required to incur significant costs and devote significant efforts to find new suppliers or manufacturers.

In connection with the November Restructuring and the anticipated closure of our Brisbane, California facility in early 2024, we expect to rely solely on contract manufacturing organizations, or CMOs, to manufacture clinical supply. We intend to continue to rely on third parties for the manufacture of product candidates for later stage clinical trials, and for commercial-scale manufacturing for any approved product. The manufacture of biopharmaceutical products in compliance with the FDA's cGMP, or comparable foreign GMP regulations, requires significant expertise and capital investment, including the development of advanced manufacturing techniques and process controls. Manufacturers of biopharmaceutical products often encounter difficulties in production, including difficulties with production costs and yields, quality control, including stability of the product candidate and quality assurance testing, shortages of qualified personnel, as well as compliance with strictly enforced cGMP requirements, other federal and state regulatory requirements and foreign regulations. If our manufacturers were to encounter any of these difficulties or otherwise fail to comply with their obligations to us or under applicable regulations, our ability to conduct later-stage clinical trials could be jeopardized. Any delay or interruption in the supply of clinical trial materials could delay the completion of our clinical trials, increase the costs associated with developing our product candidates and, depending upon the period of delay, require us to commence new clinical trials at significant additional expense or terminate the clinical trials completely.

We and our CMOs must comply with cGMP requirements enforced by the FDA through its facilities inspection program and comparable foreign regulatory authorities. These requirements include, among other things, quality control, quality assurance and the maintenance of records and documentation. We and our CMOs may be unable to comply with these cGMP requirements and with other FDA, state and comparable foreign regulatory requirements. The FDA or similar foreign regulatory agencies may also implement new standards at any time or change their interpretation and enforcement of existing standards for manufacture, packaging or testing of products. We have limited control over our manufacturers' compliance with these regulations and standards. Failure to comply with these requirements may result in fines and civil penalties, suspension of production, suspension, variation or delay in product approval, product seizure or recall or withdrawal of product approval. If the safety of any product supplied is compromised due to our manufacturers' failure to adhere to applicable laws or for other reasons, we may not be able to obtain regulatory approval for or successfully commercialize our products and we may be held liable for any injuries sustained as a result. Any of these factors could cause a delay of clinical trials, regulatory submissions, approvals or commercialization of our product candidates, entail higher costs or impair our reputation.

Our current agreements with our CMOs do not provide for the entire supply of the drug product necessary for all anticipated clinical trials or for full scale commercialization. If we and our CMOs cannot agree to the terms and conditions for them to provide the drug product necessary for our clinical and commercial supply needs, we may not be able to manufacture the product candidate until a qualified alternative manufacturer is identified, which could also delay the development of, and impair our ability to commercialize our product candidates.

The number of third-party CMOs with the necessary manufacturing and regulatory expertise and facilities is limited, and it could be expensive and take a significant amount of time to arrange for alternative CMOs, which could have an adverse effect on our business. New manufacturers of any product candidate would be required to qualify under applicable regulatory requirements and would need to have sufficient rights under applicable intellectual property laws to the method of manufacturing the product candidate. Obtaining the necessary approvals or other qualifications under applicable regulatory requirements and ensuring non-infringement of third-party intellectual property rights could result in a significant interruption of supply and could require the new manufacturer to bear significant additional costs which may be passed on to us.

We have limited experience manufacturing biopharmaceutical products, and there can be no assurance that we will be able to maintain compliant manufacturing facilities and manufacture our product candidates as intended.

In connection with the November Restructuring and the anticipated closure of our Brisbane, California facility in early 2024, we expect to rely solely on contract manufacturing organizations, or CMOs, to manufacture clinical supply. However, we continue to operate a cell therapy manufacturing facility in Valbonne, France to manufacture supplies for our cell therapy product candidates. Operationalizing the Valbonne facility requires us to transition manufacturing processes and know-how of our product candidates from our CMOs to our own facilities. Transferring manufacturing processes and know-how is complex and involves review and incorporation of both documented and undocumented processes that may have evolved over time. In addition, transferring production to different facilities may require utilization of new or different processes to meet the specific requirements of a given facility. Additional studies may also need to be conducted to support the transfer of certain manufacturing processes and process improvements. We cannot be certain that all relevant know-how and data has been adequately incorporated into the manufacturing process until the completion of studies and evaluations intended to demonstrate the comparability of material previously produced by CMOs with that generated by our facilities. Although some of our employees have experience in the manufacturing of biopharmaceutical products from prior employment at other companies, we, as a company, have no prior experience in biopharmaceutical product manufacturing, and continuing to operate the Valbonne facility will require us to comply with complex regulations and to continue to hire and retain experienced scientific, quality control, quality assurance and manufacturing personnel. In addition, government approvals are required for us to operate manufacturing facilities and are time-consuming to obtain and maintain. As a manufacturer of biopharmaceutical products, we also will be required to demonstrate and maintain cGMP compliance. These requirements include, among other things, quality control, quality assurance and the maintenance of records and documentation. Furthermore, establishing manufacturing operations will require a reallocation of other resources, particularly the time and attention of our senior management. Even if we are able to establish our own manufacturing capabilities, we could encounter challenges in operating the manufacturing facilities in compliance with cGMP, regulatory or other applicable requirements, resulting in potential negative consequences, including regulatory actions, which could undermine our ability to use these facilities for our own manufacturing needs. Any failure or delay in the development of our manufacturing capabilities could adversely impact the development of our product candidates.

Special regulatory designations, such as RMAT, orphan drug designations or fast track designation, may not be available for our product candidates or may not lead to a faster development or regulatory review or approval process.

We have received RMAT designation for our product candidates to treat severe hemophilia A and Fabry disease. Additionally, some of our product candidates, including our product candidate to treat Fabry disease, have also been granted Orphan Drug Designation by the FDA, and some have also been designated Orphan Medicinal Products by the EMA. Regulatory authorities in some jurisdictions, including the United States and the EU, may designate drugs for relatively small patient populations as orphan drugs. In addition, our product candidate to treat Fabry disease was granted FDA Fast Track Designation in May 2023. For additional information regarding these special regulatory designations, see “Business-Government Regulation” in our 2022 Annual Report.

If we request such designations for our other current or future product candidates, there can be no assurances that the FDA, the European Commission or comparable foreign regulatory authorities will grant any of our product candidates such designations. Additionally, such designations do not guarantee that any regulatory agency will accelerate regulatory review of, or ultimately approve, those product candidates, nor does it limit the ability of any regulatory agency to grant such designations to product candidates of other companies that treat the same indications as our product candidates prior to our product candidates receiving marketing approval. Such designations can also be revoked. RMAT designation can be revoked if the criteria for eligibility cease to be met as clinical data emerges. Orphan drug exclusivity may be revoked if any regulatory authority determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantity of the product to meet the needs of patients with the rare disease or condition. In addition, the FDA may withdraw Fast Track designation if it believes that the designation is no longer supported by data from our clinical development program. Fast Track designation alone does not guarantee qualification for the FDA’s priority review procedures.

Our recent restructurings may not result in anticipated savings or operational efficiencies, could result in total costs and expenses that are greater than expected and could disrupt our business.

In April 2023 and November 2023, we announced restructurings designed to reduce costs and increase focus on our key strategic priorities. We may incur additional expenses not currently contemplated due to events associated with the reduction in force, and our restructuring activities may subject us to reputational risks and litigation risks and expenses. We may not fully realize the anticipated benefits and savings from this restructuring due to unforeseen difficulties, disruptions, delays or unexpected costs, which could adversely affect our financial condition. In addition, we may need to undertake additional workforce reductions or restructuring activities in the future.

Furthermore, our restructurings may be disruptive to our operations. For example, in connection with the November Restructuring, we expect to close our Brisbane, California facility in early 2024 and move all U.S. operations, including our

headquarters, to our Richmond, California facility. We may experience delays or other difficulties in effectuating the transition of certain research and other operations, which could result in significant disruptions to our business and delays in our development efforts and clinical trial timelines. In addition, our workforce reductions could yield unanticipated consequences, such as attrition beyond planned staff reductions, increased difficulties in our day-to-day operations, loss of institutional knowledge and expertise and increased risk to our internal controls and disclosure controls. Our workforce reductions could also harm our ability to attract and retain qualified personnel who are critical to our operations.

We currently do not meet, and may not regain compliance with, the listing standards of the Nasdaq Stock Market LLC, or Nasdaq, and as a result our common stock may be delisted. Delisting could adversely affect the liquidity of our common stock and the market price of our common stock could decrease, and our ability to obtain sufficient additional capital to fund our operations and to continue to operate as a going concern would be substantially impaired.

Our common stock is currently listed on the Nasdaq Global Select Market, which has minimum requirements that a company must meet in order to remain listed. These requirements include maintaining a minimum closing bid price of $1.00 per share, which closing bid price cannot fall below $1.00 per share for a period of more than 30 consecutive trading days, or the Bid Price Requirement. On October 27, 2023, we received a deficiency notice, or the Notice, from the Listing Qualifications Staff, or the Staff of Nasdaq notifying us that, for the last 30 consecutive business days, the bid price of our common stock had closed below $1.00 per share, thereby failing to satisfy the Bid Price Requirement set forth in the continued listing requirements of Nasdaq Listing Rule 5450(a)(1). The Notice has no immediate effect on the listing of our common stock on the Nasdaq Global Select Market. In accordance with Nasdaq Listing Rule 5810(c)(3)(A), we have 180 calendar days, or until April 24, 2024, to regain compliance with the Bid Price Requirement by having shares of our common stock maintain a minimum closing bid price of at least $1.00 per share for a minimum of 10 consecutive trading days. In the event we do not regain compliance with the Bid Price Requirement prior to the expiration of the compliance period, unless Nasdaq exercises its discretion to extend this period, our common stock may be subject to a delisting action by Nasdaq.

A reverse stock split may allow us to meet the Bid Price Requirement, but we cannot assure you that a reverse stock split will be approved by our stockholders or that any reverse stock split, if implemented, will be sufficient to enable us to maintain our Nasdaq listing. Additionally, if a reverse stock split is implemented, there can be no assurance that the market price per new share of our common stock following the reverse stock split will remain unchanged or will increase in proportion to the reduction in the number of old shares of our common stock outstanding before the reverse stock split. The liquidity of the shares of our common stock may be affected adversely by any reverse stock split given the reduced number of shares of our common stock that will be outstanding following such reverse stock split. Furthermore, following any reverse stock split, the resulting market price of our common stock may not attract new investors and may not satisfy the investing requirements of those investors.

In the event that our common stock is delisted from Nasdaq as a result of our failure to regain compliance with the Bid Price Requirement, as a result of Nasdaq not granting us an extension or the panel not granting us a favorable decision or due to our failure to continue to comply with any other requirement for continued listing on Nasdaq, trading of our common stock could be conducted in the over-the-counter market or on an electronic bulletin board established for unlisted securities such as the Pink Sheets or the OTC Bulletin Board, but there can be no assurance that our common stock will be eligible for trading on such alternative exchange or market.

Additionally, if our common stock is delisted from Nasdaq, the liquidity of our common stock would be adversely affected, the market price of our common stock could decrease, our ability to obtain sufficient additional capital to fund our operations and to continue to operate as a going concern would be substantially impaired and transactions in our common stock could lose federal preemption of state securities laws. Furthermore, there could also be a further reduction in our coverage by securities analysts and the news media and broker-dealers may be deterred from making a market in or otherwise seeking or generating interest in our common stock, which could cause the price of our common stock to decline further. Moreover, delisting may also negatively affect our collaborators', vendors', suppliers' and employees' confidence in us and employee morale.

We have experienced and may continue to experience difficulties in hiring, integrating and retaining qualified skilled employees.

The stability and potential growth of our organization is critical to our ability to successfully achieve our strategic objectives. We may not be able to hire, integrate and retain a sufficient number of qualified employees with the appropriate levels of experience and skills to accomplish our growth objectives.

There currently is a shortage of skilled individuals with substantial experience discovering, developing and manufacturing genomic medicines, which is likely to continue. As a result, competition for these individuals is intense and the turnover rate can be high. We have experienced, and may continue to experience, difficulty hiring, integrating and retaining employees with these skills on acceptable terms given the uncertainty regarding our ability to obtain sufficient additional funding and to continue to operate as a going concern as well as the competition among numerous biopharmaceutical companies and academic institutions for individuals with these skills. In this regard, as a result of our April and November Restructurings, 272

roles at our company were eliminated. Accordingly, we have been and are operating with a shortage of resources and may not be able to effectively conduct our operations with our substantially reduced number of employees. In addition, our history of implementing significant workforce reductions, along with the potential for future workforce reductions, may negatively affect our ability to retain or attract talented employees. Moreover, any negative or unexpected results in our preclinical or clinical trials or applications for marketing approval would make it more challenging to hire and retain qualified skilled employees. If we do not obtain sufficient additional funding in the near term so that we can continue to operate as a going concern and to potentially achieve our growth objectives, the progress of our research, development, manufacturing and regulatory efforts will slow down or halt altogether, which would materially and adversely affect our business, financial condition, results of operations and prospects, and we may be required to cease operations.

We are dependent on certain key members of our executive team and certain of our scientific, clinical development and manufacturing personnel, the loss of whose services may impede the progress of our research, development and regulatory efforts. For example, in 2022, our former Senior Vice President, Head of Development, resigned from Sangamo, and in connection with our April and November Restructurings, the employment of each of our former Executive Vice President, Technical Operations, Executive Vice President, Chief Operating Officer, and Senior Vice President, Chief Scientific Officer, was terminated. We could experience resignations of other executives and employees in the future given the uncertainty regarding our ability to obtain sufficient additional funding and to continue to operate as a going concern as well as the intensity of the competition for talent in the biotechnology industry, particularly in the San Francisco Bay Area. Additional resignations or workforce reductions could result in more significant disruptions and threats to our stability and potential growth. While we have entered into employment agreements with each of our executive officers, any of them could leave our employment at any time, as all of our employees are “at will” employees. We do not have “key person” insurance on any of our employees.

We have fully impaired our goodwill and indefinite-lived intangible assets, have recorded significant impairment of our long-lived assets, and may be required to record in the future significant additional charges if our long-lived assets become further impaired.

We test goodwill, indefinite-lived intangible assets and long-lived assets for impairment annually or more frequently if changes in circumstances or the occurrence of events suggest impairment exists. Any significant change in market conditions, including a sustained decline in our stock price, that indicate a reduction in carrying value may give rise to impairment in the period that the change becomes known. For example, during the three and nine months ended September 30, 2023, we recognized impairment charges of $44.8 million and $154.7 million, respectively. We have now fully impaired our goodwill and indefinite-lived intangible assets and have significantly impaired our long-lived assets. For additional information regarding these impairment charges, see “Note 6 – *Impairment of Goodwill, Indefinite-lived Intangible Assets and Other Long-lived Assets*” in Part I, Item 1 of this Quarterly Report on Form 10-Q.

It is possible that changes in circumstances, many of which are outside of our control, or in the numerous variables associated with the assumptions and estimates used in assessing the appropriate valuation of our long-lived assets, could in the future result in significant additional impairment charges to our long-lived assets, which could adversely affect our results of operations.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES, USE OF PROCEEDS, AND ISSUER PURCHASES OF EQUITY SECURITIES

None.

ITEM 3. DEFAULTS UPON SENIOR SECURITIES

Not applicable.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

ITEM 5. OTHER INFORMATION

November Restructuring

On October 11, 2023, our board of directors approved a restructuring of operations and a corresponding reduction in workforce, or the November Restructuring, designed to reduce costs and advance our strategic transformation into a neurology-focused genomic medicine company. We notified employees affected by the November Restructuring on November 1, 2023. We expect the November Restructuring to result in the elimination of approximately 162 roles in the United States, or approximately 40% of our United States workforce. We estimate that we will incur approximately $8 million to $10 million in cash-based expenses related to employee severance and notice period payments, benefits and related restructuring costs. We expect that the

majority of the restructuring charges will be incurred in the fourth quarter of 2023 and that the execution of the November Restructuring will be substantially complete by the second quarter of 2024. We may also incur other charges or cash expenditures not currently contemplated due to events that may occur as a result of, or associated with, the November Restructuring.

Departure of Certain Officers

In connection with the November Restructuring, the employment of each of D. Mark McClung, Executive Vice President, Chief Operating Officer, and Jason Fontenot, Ph.D., Senior Vice President, Chief Scientific Officer, will terminate, effective as of January 2, 2024. In connection with the termination of their employment, pursuant to the Amended Severance Plan (as defined below), Mr. McClung and Dr. Fontenot are entitled to certain severance benefits in exchange for the execution of a general settlement and release agreement.

Approval of Amended and Restated Executive Severance Plan

On October 28, 2023, the compensation committee of our board of directors approved an amendment and restatement of our Amended and Restated Executive Severance Plan, or as so amended and restated, the Amended Severance Plan.

The purpose of such amendment and restatement is to provide for the payment of certain severance benefits in the form of a lump sum (instead of in installments or monthly reimbursements) following termination. Specifically, if an Eligible Employee (as defined in the Amended Severance Plan and which includes all of our executive officers) becomes entitled to severance benefits under the Amended Severance Plan, (i) cash severance payments will be made in the form of a lump sum within 60 days following the Eligible Employee's termination (instead of in the form of installments over the applicable severance period, which may range from 9 to 18 months following such termination depending on the Eligible Employee's position) and (ii) cash payments intended to replace COBRA premium reimbursements may be made in the form of a lump sum within 60 days following the Eligible Employee's termination (instead of in the form of monthly reimbursements over the applicable severance period), in our discretion, in each case to the extent that such payments (a) are exempt from Section 409A of the Internal Revenue Code of 1986, as amended, or the Code, as determined by us in our discretion at the time of the Eligible Employee's termination, or (ii) may otherwise be made in a lump sum upon such termination without causing adverse tax consequences under Section 409A of the Code.

The changes regarding the timing and form of payment of certain severance benefits under the Amended Severance Plan, as described above, were the only material changes made under the Amended Severance Plan. No other material changes (including changes regarding eligibility for, or the amount or type of, severance benefits) were made under the Amended Severance Plan.

The foregoing description of the changes made under the Amended Severance Plan does not purport to be complete and is subject to, and qualified in its entirety by reference to, the full text of the Amended Severance Plan is filed as an exhibit to this Quarterly Report on Form 10-Q.

Nasdaq Deficiency Notice

On October 27, 2023, we received a deficiency notice, or the Notice, from the Listing Qualifications Staff, or the Staff, of The Nasdaq Stock Market LLC, or Nasdaq, notifying us that, for the last 30 consecutive business days, the bid price of our common stock had closed below $1.00 per share, the minimum closing bid price required by the continued listing requirements of Nasdaq Listing Rule 5450(a)(1). The Notice has no immediate effect on the listing of our common stock on the Nasdaq Global Select Market. In accordance with Nasdaq Listing Rule 5810(c)(3)(A), we have 180 calendar days, or until April 24, 2024, or the Compliance Date, to regain compliance with the minimum bid price requirement by having shares of our common stock maintain a minimum closing bid price of at least $1.00 per share for a minimum of 10 consecutive trading days before the Compliance Date. If our common stock does not achieve compliance by the Compliance Date, we may be eligible for an additional 180-day period to regain compliance. To qualify, we would be required to transfer our listing to the Nasdaq Capital Market and meet the continued listing requirement for market value of publicly held shares and all other applicable initial listing standards for the Nasdaq Capital Market, with the exception of the bid price requirement, and must provide written notice to Nasdaq of our intention to cure the deficiency during the second compliance period, by effecting a reverse stock split, if necessary. However, if it appears to the Staff that we will not be able to cure the deficiency, or if we are otherwise not eligible for the additional compliance period, and we do not regain compliance by the Compliance Date, the Staff will provide written notification to us that our common stock is subject to delisting. At that time, we may appeal the delisting determination to a hearings panel pursuant to the procedures set forth in the applicable Nasdaq listing rules. However, there can be no assurance that, if we receive a delisting notice and appeals the delisting determination by Nasdaq to the panel, such appeal would be successful.

We intend to actively monitor the closing bid price of our common stock between now and the Compliance Date and, as appropriate, will evaluate available options to resolve the deficiency and regain compliance with the minimum bid price requirement.

ITEM 6. EXHIBITS

Exhibit number		Description of Document
3.1		Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.3 to the Company's Current Report on Form 8-K filed June 2, 2023).
3.2		Fifth Amended and Restated Bylaws (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K filed December 19, 2022).
10.1#+		Amended and Restated Severance Plan of Sangamo Therapeutics, Inc.
31.1+		Rule 13a — 14(a) Certification of Principal Executive Officer.
31.2+		Rule 13a — 14(a) Certification of Principal Financial Officer.
32.1+	*	Certifications Pursuant to 18 U.S.C. Section 1350.
101.INS		XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.
101.SCH		Inline XBRL Taxonomy Extension Schema Document
101.CAL		Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF		Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB		Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE		Inline XBRL Taxonomy Extension Presentation Linkbase Document
104		The cover page from Sangamo's Quarterly Report on Form 10-Q for the three months ended September 30, 2023 is formatted in Inline XBRL and it is contained in Exhibit 101

* The certifications attached as Exhibit 32.1 accompany this Quarterly Report on Form 10-Q pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, and shall not be deemed "filed" by the Registrant for purposes of Section 18 of the Securities Exchange Act of 1934, as amended.

\# Indicates management contract or compensatory plan or arrangement.

\+ Filed herewith.

SIGNATURES

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

Dated: November 1, 2023

SANGAMO THERAPEUTICS, INC.

/s/ ALEXANDER D. MACRAE

Alexander D. Macrae
President and Chief Executive Officer
(Principal Executive Officer)

/s/ PRATHYUSHA DURAIBABU

Prathyusha Duraibabu
Senior Vice President and Chief Financial Officer
(Principal Financial and Accounting Officer)

SANGAMO THERAPEUTICS, INC.
AMENDED AND RESTATED EXECUTIVE SEVERANCE PLAN

INTRODUCTION

The Sangamo Therapeutics, Inc. Amended and Restated Executive Severance Plan (the "Plan") is amended and restated effective as of October 28, 2023 (the "Effective Date"). The Plan was previously amended and restated effective as of February 6, 2019, which amended and restated in its entirety the Company's Executive Severance Plan that became effective as of March 14, 2017.

The purpose of the Plan is to provide severance benefits to certain executive officers and other key employees whose employment with Sangamo Therapeutics, Inc. (the "Company) terminates under certain prescribed circumstances.

This Plan is designed to be an "employee welfare benefit plan," as defined in Section 3(1) of the Employee Retirement Income Security Act of 1974, as amended ("ERISA") and to meet the descriptive requirements of a plan constituting a "severance pay plan" within the meaning of the Department of Labor regulations published at Title 29, Code of Federal Regulations, Section 2510.3-2(b). This Plan is intended to provide benefits to a select group of management or highly compensated employees from the general assets of the Company within the meaning of Department of Labor regulations published at Title 29, Code of Federal Regulations, Section 2520.104-24.

This Plan supersedes all severance pay plans, policies, programs, guidelines, practices, arrangements, agreements, letters and/or other communication, whether formal or informal or written or unwritten, of the Company under which the Eligible Employee is eligible to receive benefits. This Plan represents exclusive severance benefits provided to Eligible Employees and such individuals shall not be eligible for other benefits provided in other severance pay plans, policies, programs, guidelines, practices, arrangements, agreements (including any employment agreement with the Company), letters (including any offer letters from the Company) or other communications of the Company.

Article 1
Definitions

1.1 "Base Salary" means 1/12 of the amount of annual base salary payable to the Participant at the salary rate in effect on the last day of the Participant's employment with the Company (without giving effect to any reduction in the Participant's base compensation that would constitute Good Reason for a resignation by the Participant with Good Reason).

1.2 "Board of Directors" means the Board of Directors of the Company.

1.3 "Cause" means misconduct, including the following:

(a) commission of a felony or commission of any other crime against or involving the Company;

(b) an act of fraud, dishonesty or misappropriation committed by the Participant with respect to the Company;

(c) willful or reckless misconduct by the Participant that materially affects the Company or any of its officers, directors, employees, clients, partners, insurers, subsidiaries, parents, or affiliates; or

(d) a material breach by the Participant of any employment agreement or the Proprietary Information, Inventions and Materials Agreement between the Participant and the Company.

1.4 "Change in Control" means a change in ownership or control of the Company effected through the closing of any of the following transactions:

(a) a merger, consolidation or other reorganization approved by the Company's stockholders, *unless* securities representing more than fifty percent (50%) of the total combined voting power of the voting securities of the successor corporation are immediately thereafter beneficially owned, directly or indirectly and in substantially the same proportion, by the persons who beneficially owned the Company's outstanding voting securities immediately prior to such transaction;

(b) a stockholder-approved sale, transfer or other disposition of all or substantially all of the Company's assets in complete liquidation or dissolution of the Company; or

(c) any transaction or series of related transactions pursuant to which any person or any group of persons comprising a "group" within the meaning of Rule 13d-5(b)(1) of the Securities Exchange Act of 1934, as amended (other than the Company or a person that, prior to such transaction or series of related transactions, directly or indirectly controls, is controlled by or is under common control with, the Company) becomes directly or indirectly the beneficial owner (within the meaning of Rule 13d-3 of the Securities Exchange Act of 1934, as amended) of securities possessing (or convertible into or exercisable for securities possessing) more than fifty percent (50%) of the total combined voting power of the Company's securities (as measured in terms of the power to vote with respect to the election of the members of the Board of Directors) outstanding immediately after the consummation of such transaction or series of related transactions, whether such transaction involves a direct issuance from the Company or the acquisition of outstanding securities held by one or more of the Company's existing stockholders.

1.5 "Change in Control Period" means the twelve (12)-month period beginning on the date of a Change in Control.

1.6 "Code" shall mean the Internal Revenue Code of 1986, as amended.

1.7 "Eligible Employee" means an employee of the Company serving as (i) the Chief Executive Officer, (ii) an Executive Vice President, (iii) a Senior Vice President or (iv) a Vice President, unless the Plan Administrator determines otherwise.

1.8 "Employer Group" means the Company and any other corporation or business controlled by, controlling or under common control with, the Company as determined in accordance with

Sections 414(b) and (c) of the Code and the Treasury Regulations thereunder, except that in applying Sections 1563(a)(1), (2) and (3) for purposes of determining the controlled group of corporations under Section 414(b) of the Code, the phrase "at least 50 percent" shall be used instead of "at least 80 percent" each place the latter phrase appears in such sections and in applying Section 1.414(c)-2 of the Treasury Regulations for purposes of determining trades or businesses that are under common control for purposes of Section 414(c) of the Code, the phrase "at least 50 percent" shall be used instead of "at least 80 percent" each place the latter phrase appears in Section 1.414(c)-2 of the Treasury Regulations.

1.9 "Good Reason" means a Participant's resignation following any one or more of the following without the Participant's written consent:

(a) a material diminution in the Participant's base compensation or target amount of annual cash bonus;

(b) a material relocation of the Participant's principal place of business, with a relocation of more than fifty (50) miles to be deemed material for such purposes;

(c) a material diminution in the Participant's duties, responsibilities or authority, which in the case of the Chief Executive Officer shall include a material change to his or her direct reporting relationship with the Board; or

(d) a material breach by the Company of any employment agreement between the Participant and the Company.

In order for a termination of employment to be for Good Reason, the Participant must provide written notice to the Plan Administrator of the existence of one or more conditions described above and the Participant's intent to resign for Good Reason hereunder within a period not to exceed thirty (30) days of the Participant's knowledge of the initial existence of the condition (and in no event later than ninety (90) days of the initial existence of the condition). Following the Participant providing this notice, the Company shall be provided a period of at least thirty (30) days during which to remedy the condition. The Participant shall continue to receive the Participant's compensation and benefits during the cure period and if the condition is not cured during such period, then at the end of such period the Participant's employment shall cease and the Participant may become entitled to the severance benefits described in this Plan; *provided, however*, that the Participant may only become entitled to such severance benefits if the Participant's employment terminates within two (2) years of the initial existence of the condition that gave rise to the resignation for Good Reason. If the condition is cured, the Participant shall not be deemed to have "Good Reason" to terminate the Participant's employment.

1.10 "Participant" means any Eligible Employee who has commenced participation in the Plan pursuant to Article 2. An individual shall continue as a Participant in the Plan until such time as set forth in Article 2.

1.11 "Separation from Service" shall mean the Participant's cessation of Employee Status and shall be deemed to occur at such time as the level of the bona fide services the Participant is to perform in Employee Status (or as a consultant or other independent contractor) permanently

decreases to a level that is not more than twenty percent (20%) of the average level of services the Participant rendered in Employee Status during the immediately preceding thirty-six (36) months (or such shorter period for which the Participant may have rendered such service). Any such determination as to Separation from Service, however, shall be made in accordance with the applicable standards of the Treasury Regulations issued under Section 409A of the Code. For purposes of determining whether the Participant has incurred a Separation from Service, the Participant will be deemed to continue in "Employee Status" for so long as the Participant remains in the employ of one or more members of the Employer Group, subject to the control and direction of the employer entity as to both the work to be performed and the manner and method of performance. In addition to the foregoing, a Separation from Service will not be deemed to have occurred while the Participant is on a sick leave or other bona fide leave of absence if the period of such leave does not exceed six (6) months or any longer period for which the Participant is provided with a right to reemployment with one or more members of the Employer Group by either statute or contract; *provided, however*, that in the event the Participant's leave of absence is due to any medically determinable physical or mental impairment that can be expected to result in death or to last for a continuous period of not less than six (6) months and that causes the Participant to be unable to perform the Participant's duties as an employee, no Separation from Service shall be deemed to occur during the first twenty-nine (29) months of such leave. If the period of leave exceeds six (6) months (or twenty-nine (29) months in the event of disability as indicated above) and the Participant is not provided with a right to reemployment either by statute or contract, then the Participant will be deemed to have a Separation from Service on the first day immediately following the expiration of such six (6)-month or twenty-nine (29)-month period.

1.12 "Target Bonus" means 1/12 of the amount of the Participant's target bonus for the year in which the Separation from Service occurs (without giving effect to any reduction in the Participant's target amount of annual cash bonus that would constitute Good Reason for a resignation by the Participant with Good Reason).

Article 2
Eligibility

An Eligible Employee shall, upon execution of the General Release (as defined below) and the General Release becoming effective and enforceable in accordance with Section 4.4 below, become eligible to receive the severance benefits upon the Eligible Employee's Separation from Service without Cause or for Good Reason as set forth in Section 4.1 or 4.2. Participants shall cease participation in the Plan upon the earliest of (i) the Participant's Separation from Service for Cause or without Good Reason, (ii) the Participant's failure to comply with the General Release requirement or (iii) for a Participant eligible to receive severance benefits under Section 4.1 or 4.2, the date the Participant has received all such severance benefits, as applicable.

Article 3
Plan Administration

The Compensation Committee of the Board of Directors shall serve as the Plan Administrator. The Plan Administrator is responsible for the general administration and

management of this Plan and shall have all powers and duties necessary to fulfill its responsibilities, including, but not limited to, the discretion to interpret and apply this Plan and to determine all questions relating to eligibility for benefits. This Plan shall be interpreted in accordance with its terms and their intended meanings. However, the Plan Administrator shall have the discretion to interpret or construe ambiguous, unclear, or implied (but omitted) terms in any fashion it deems to be appropriate in its sole discretion, and to make any findings of fact needed in the administration of this Plan. The validity of any such interpretation, construction, decision, or finding of fact shall not be given de novo review if challenged in court, by arbitration, or in any other forum, and shall be upheld unless clearly arbitrary or capricious.

Article 4
Severance Benefits

4.1 Severance Benefits Upon Involuntary Termination. If a Participant has a Separation from Service due to a termination by the Company without Cause or a resignation by the Participant with Good Reason, in either case other than during the Change in Control Period, the Participant shall be entitled to receive the following benefits, provided that the General Release has been delivered by the Participant pursuant to Section 4.4 below and is effective and enforceable following the expiration of the revocation period applicable to that General Release under law, and subject to Section 4.6 pursuant to which the following benefits may instead be paid in a lump sum.

(a) Cash Severance. The Company shall pay in cash an amount equal to the Applicable Multiple (as set forth in subsection (c) below) of the Participant's Base Salary. Such severance payment shall be paid in a series of successive equal installments over a period of months equal to the Applicable Multiple. The first such payment shall be made within the sixty (60)-day period measured from the date of the Participant's Separation from Service; *provided, however*, that should such sixty (60)-day period span two (2) taxable years, then the first such payment shall be made during the portion of that sixty (60)-day period that occurs in the second taxable year. The remaining installments shall be made in accordance with the Company's regular payroll schedule for its salaried employees.

(b) Reimbursement for Health Coverage. If the Participant is eligible for and timely elects to receive continued health coverage under the Company's health plan under COBRA at a level of coverage at or below the Participant's level of coverage in effect on the date of the Participant's Separation from Service, then for a number of months equal to the Applicable Multiple (the "Coverage Period"), the Company shall reimburse the Participant monthly an amount equal to the monthly COBRA premium paid by the Participant, less the premium charge that is paid by the Company's active employees for such coverage as in effect on the date of the Participant's Separation from Service; *provided, however*, that the Coverage Period will end earlier on the date, if any, on which the Participant first becomes covered by any other "group health plan" as described in Section 4980B(g)(2) of the Code. The payments shall commence within the sixty (60)-day period measured from the date of the Participant's Separation from Service. However, should such sixty (60)-day period span two (2) taxable years, then the first such payment shall be made during the portion of that sixty (60)-day period that occurs in the second taxable year. The remaining payments shall be made in accordance with the Company's regular payroll schedule for its salaried employees. In order to receive reimbursements hereunder, the Participant must

provide proof of payment of the applicable premiums prior to the applicable reimbursement payment date. The first payment shall include any payments for the period from the date of the Participant's Separation from Service to the commencement date. The Company shall reimburse the Participant under this Section 4.1(b) only for the portion of the Coverage Period during which the Participant continues coverage under the Company's health plan. The Participant agrees to promptly notify the Company of the Participant's coverage under an alternative health plan upon becoming covered by such alternative plan. The COBRA health care continuation coverage period under Section 4980B of the Code shall run concurrently with the Coverage Period. Notwithstanding the foregoing, the Company reserves the right to restructure the foregoing COBRA premium reimbursement arrangement in any manner necessary or appropriate to avoid fines, penalties or negative tax consequences to the Company or the Participant (including, without limitation, to avoid any penalty imposed for violation of the nondiscrimination requirements under the Patient Protection and Affordable Care Act (or any other applicable laws and regulations) or the guidance issued thereunder), as determined by the Company in its sole and absolute discretion, including treating such reimbursements as taxable benefits subject to withholding.

(c) Applicable Multiple. The Applicable Multiple under this Section 4.1 shall be as follows:

(i) Chief Executive Officer: 18

(ii) Executive Vice President: 15

(iii) Senior Vice President: 12

(iv) Vice President: 9

4.2 Severance Benefits Upon Change in Control. If a Participant has a Separation from Service due to a termination by the Company without Cause or a resignation by the Participant with Good Reason, in either case during the Change in Control Period, the Participant shall be entitled to receive the following benefits, provided that the General Release has been delivered by the Participant pursuant to Section 4.4 below and is effective and enforceable following the expiration of the revocation period applicable to that General Release under law, and subject to Section 4.6 pursuant to which the benefits under Section 4.2(a) or 4.2(b) may instead be paid in a lump sum.

(a) Cash Severance. The Company shall pay in cash an amount equal to the sum of (i) the CIC Applicable Multiple (as set forth in subsection (d) below) of the Participant's Base Salary plus (ii) the CIC Applicable Multiple (as set forth in subsection (d) below) of the Participant's Target Bonus, subject to any reduction provided for in the Incentive Compensation Plan (for purpose of which "Employment Agreement" shall include this Plan) or any successor bonus plan for any bonus paid to the Participant under such plan in connection with such Change in Control and based in whole or in part on the target bonus amount. Such cash severance payments shall be made in the form and at the times set forth in Section 4.1(a) over a period of months equal to (i) twelve (12) for the Chief Executive Officer and (ii) the CIC Applicable Multiple set forth in Section 4.2(d) below for the other Participants.

(b) Reimbursement for Health Coverage. If the Participant is eligible for and timely elects to receive continued health coverage under the Company's health plan under COBRA at a level of coverage at or below the Participant's level of coverage in effect on the date of the Participant's Separation from Service, then for a number of months equal to the CIC Applicable Multiple, the Company shall reimburse the Participant monthly an amount equal to the monthly COBRA premium paid by the Participant, less the premium charge that is paid by the Company's active employees for such coverage as in effect on the date of the Participant's Separation from Service. Such reimbursement shall be made in accordance with and subject to the conditions set forth in Section 4.1(b) (but for the number of months equal to the CIC Applicable Multiple determined under this Section 4.2 rather than the Applicable Multiple determined under Section 4.1).

(c) Accelerated Vesting. The Participant shall vest on an accelerated basis with respect to 100% of the unvested shares subject to any option to purchase shares of the Company's common stock or any other equity award granted to the Participant to the extent outstanding and unvested at the time of the Participant's Separation from Service. To the extent necessary to comply with Section 409A of the Code, such acceleration shall occur within the sixty (60)-day period measured from the date of the Participant's Separation from Service and should such sixty (60)-day period span two (2) taxable years, then such acceleration shall occur during the portion of that sixty (60)-day period that occurs in the second taxable year. In order to give effect to the intent of the foregoing provision, with respect to any such equity award other than a stock option, in the event of such Separation from Service, notwithstanding anything to the contrary in any applicable equity incentive plan of the Company or any agreement evidencing such equity award, in no event will any portion of such equity award be forfeited or terminate any earlier than the sixtieth (60th) day following the date of such Separation from Service. Each of the Participant's stock options to the extent outstanding as of, and as so vested in connection with, the Participant's Separation from Service under this Section 4.2(c) shall remain exercisable for a period of twelve (12) months measured from the date of Separation from Service, but in no event beyond the expiration of the maximum option term.

(d) CIC Applicable Multiple. The CIC Applicable Multiple under this Section 4.2 shall be as follows:

(i) Chief Executive Officer: 18

(ii) Executive Vice President: 15

(iii) Senior Vice President: 12

(iv) Vice President: 9

4.3 No Duplication of Benefits. Notwithstanding anything to the contrary, under no circumstances shall a Participant be eligible to receive payments under both Sections 4.1 and 4.2.

4.4 Release Requirement. Notwithstanding anything to the contrary in this Plan, in order to receive any severance payments or benefits under this Plan, the Participant must first execute and deliver to the Company, within twenty-one (21) days (or forty-five (45) days if such longer period is required under applicable law) after the later of (i) the effective date of the Participant's Separation from Service or (ii) the date the Participant receives the General Release (as defined

herein), a general settlement and release agreement in substantially the form attached hereto as Exhibit A (the "General Release") and such General Release must become effective and enforceable in accordance with its terms following the expiration of any applicable revocation period under federal or state law; *provided, however*, that in no event may the applicable twenty-one (21) (or forty-five (45))-day period or revocation period hereunder extend beyond sixty (60) days following the date of the Participant's Separation from Service. If such General Release is not executed and delivered to the Company within the applicable twenty-one (21) (or forty-five (45))-day period hereunder or does not otherwise become effective and enforceable in accordance with its terms, then no severance payments or benefits will provided to the Participant under this Plan. The Company, in its sole and absolute discretion, may modify the form of the General Release to comply with applicable law and shall determine the form of the General Release.

4.5 Section 280G.

(a) If any payment or benefit a Participant would receive from the Company pursuant to this Plan or otherwise ("Payment") would (i) constitute a "parachute payment" within the meaning of Section 280G of the Code, and (ii) but for this sentence, be subject to the excise tax imposed by Section 4999 of the Code (the "Excise Tax"), then such Payment shall be equal to the Reduced Amount. The "Reduced Amount" shall be either (x) the largest portion of the Payment that would result in no portion of the Payment being subject to the Excise Tax or (y) the largest portion, up to and including the total, of the Payment, whichever amount, after taking into account all applicable federal, state and local employment taxes, income taxes, and the Excise Tax (all computed at the highest applicable marginal rate), results in the Participant's receipt, on an after-tax basis, of the greater economic benefit notwithstanding that all or some portion of the Payment may be subject to the Excise Tax. If a reduction in a Payment is required pursuant to the preceding sentence and the Reduced Amount is determined pursuant to clause (x) of the preceding sentence, the reduction shall occur in the manner (the "Reduction Method") that results in the greatest economic benefit for the Participant. If more than one method of reduction will result in the same economic benefit, the items so reduced will be reduced pro rata (the "Pro Rata Reduction Method").

(b) Notwithstanding any provision of Section 4.5(a) to the contrary, if the Reduction Method or the Pro Rata Reduction Method would result in any portion of the Payment being subject to taxes pursuant to Section 409A of the Code that would not otherwise be subject to taxes pursuant to Section 409A of the Code, then the Reduction Method and/or the Pro Rata Reduction Method, as the case may be, shall be modified so as to avoid the imposition of taxes pursuant to Section 409A of the Code as follows: (A) as a first priority, the modification shall preserve to the greatest extent possible, the greatest economic benefit for the Participant as determined on an after-tax basis; (B) as a second priority, Payments that are contingent on future events (e.g., being terminated without cause), shall be reduced (or eliminated) before Payments that are not contingent on future events; and (C) as a third priority, Payments that are "deferred compensation" within the meaning of Section 409A of the Code shall be reduced (or eliminated) before Payments that are not deferred compensation within the meaning of Section 409A of the Code.

(c) In the event it is subsequently determined by the Internal Revenue Service that some portion of the Reduced Amount as determined pursuant to clause (x) in the preceding paragraph is subject to the Excise Tax, the Participant agrees to promptly return to the Company a sufficient amount of the Payment so that no portion of the Reduced Amount is subject to the Excise Tax. For the avoidance of doubt, if the Reduced Amount is determined pursuant to clause (y) in Section 4.5(b), the Participant will have no obligation to return any portion of the Payment pursuant to the preceding sentence.

(d) The accounting firm engaged by the Company for general tax compliance purposes as of the day prior to the effective date of the Change in Control shall perform the foregoing calculations unless otherwise determined by the Company. If the accounting firm so engaged by the Company is serving as accountant or auditor for the individual, entity or group effecting the Change in Control, the Company shall appoint a nationally recognized accounting firm to make the determinations required hereunder. The Company shall bear all expenses with respect to the determinations by such accounting firm required to be made hereunder.

4.6 Lump Sum Payments. Notwithstanding anything in this Plan to the contrary, if any amounts under Section 4.1(a), 4.1(b), 4.2(a) or 4.2(b) are exempt from Section 409A of the Code (as determined by the Company in its sole and absolute discretion at the time of a Participant's Separation from Service) or such amounts may otherwise be paid in a lump sum upon such Separation from Service without causing adverse tax consequences under Section 409A of the Code, then:

(a) the Company shall pay any such amounts under Section 4.1(a) or 4.2(a) in a lump sum (instead of in the form of installments) within the sixty (60)-day period measured from the date of the Participant's Separation from Service;

(b) the Company, in its sole and absolute discretion, may pay any such amounts under Section 4.1(b) or 4.2(b) in a lump sum (instead of in the form of monthly reimbursements) within the sixty (60)-day period measured from the date of the Participant's Separation from Service; *provided, however*, that such lump sum, if any, (i) shall be paid without regard to whether the Participant is eligible for and timely elects to receive continued health coverage under the Company's health plan under COBRA, or pays any COBRA premiums, and (ii) shall be calculated without regard to any provision in the Plan under which the Coverage Period may end earlier due to the Participant becoming covered by any other "group health plan" as described in Section 4980B(g)(2) of the Code; and

(c) for clarity, any amounts under Section 4.1(a), 4.1(b), 4.2(a) or 4.2(b) that are not paid pursuant to this Section 4.6 shall be paid in accordance with the applicable form of payment and schedule set forth in Section 4.1(a), 4.1(b), 4.2(a) or 4.2(b), in each case subject to Section 7.1, as applicable.

Article 5
Claims and Review Procedures

5.1 Claims Procedure. Any individual ("claimant") who has not received benefits under the Plan that the claimant believes should be paid shall make a claim for such benefits as follows:

(a) Initiation - Written Claim. The claimant initiates a claim by submitting to the Plan Administrator a written claim for the benefits.

(b) Timing of Plan Administrator Response. The Plan Administrator shall respond to such claimant within ninety (90) days after receiving the claim. If the Plan Administrator determines that special circumstances require additional time for processing the claim, the Plan Administrator can extend the response period by an additional ninety (90) days by notifying the claimant in writing, prior to the end of the initial ninety (90)-day period, that an additional period is required. The notice of extension must set forth the date by which the Plan Administrator expects to render its decision.

(c) Notice of Decision. If the Plan Administrator denies part or all of the claim, the Plan Administrator shall notify the claimant in writing of such denial. The Plan Administrator shall write the notification in a manner calculated to be understood by the claimant. The notification shall set forth:

(i) The specific reason for the denial;

(ii) A reference to the specific provisions of the Plan on which the denial is based;

(iii) A description of any additional information or material necessary for the claimant to perfect the claim and an explanation of why it is needed;

(iv) An explanation of the Plan's review procedures and the time limits applicable to such procedures; and

(v) A statement of the claimant's right to bring a civil action under the Employee Retirement Income Security Act of 1974 ("ERISA") Section 502(a) following an adverse benefit determination on review.

5.2 Review Procedure. If the Plan Administrator denies part or all of the claim, the claimant shall have the opportunity for a full and fair review by the Plan Administrator of the denial, as follows:

(a) Initiation - Written Request. To initiate the review, the claimant, within sixty (60) days after receiving the Plan Administrator's notice of denial, must file with the Plan Administrator a written request for review.

(b) Additional Submissions - Information Access. The claimant shall then have the opportunity to submit written comments, documents, records and other information relating to the claim. The Plan Administrator shall also provide the claimant, upon request and free of

charge, reasonable access to, and copies of, all documents, records and other information relevant (as defined in applicable ERISA regulations) to the claimant's claim for benefits.

(c) Timing of Plan Administrator Response. The Plan Administrator shall respond to the claimant's request for review within sixty (60) days after receiving the request. If the Plan Administrator determines that special circumstances require additional time for processing the request, the Plan Administrator can extend the response period by an additional sixty (60) days by notifying the claimant in writing, prior to the end of the initial sixty (60)-day period, that an additional period is required. The notice of extension must set forth the date by which the Plan Administrator expects to render its decision.

(d) Notice of Decision. If the Plan Administrator affirms the denial of part or the entire claim, the Plan Administrator shall notify the claimant in writing of such denial. The Plan Administrator shall write the notification in a manner calculated to be understood by the claimant. The notification shall set forth the specific reason for the denial and a reference to the specific provisions of the Plan on which the denial is based.

5.3 Authority. In determining whether to approve or deny any claim or any appeal from a denied claim, the Plan Administrator shall exercise its discretionary authority to interpret the Plan and the facts presented with respect to the claim, and its discretionary authority to determine eligibility for benefits under the Plan. Any approval or denial shall be final and conclusive upon all persons.

5.4 Exhaustion of Remedies. Except as required by applicable law, no action at law or equity shall be brought to recover a benefit under the Plan unless and until the claimant has: (a) submitted a claim for benefits, (b) been notified by the Plan Administrator that the benefits (or a portion thereof) are denied, (c) filed a written request for a review of denial with the Plan Administrator, and (d) been notified in writing that the denial has been affirmed.

Article 6
Amendment and Termination

It is intended that the Plan shall continue from year to year, subject to periodic review by the Plan Administrator. However, the Plan Administrator reserves the right to modify, amend or terminate the Plan at any time; provided, that no amendment or termination shall adversely affect the rights of any then Eligible Employee under the Plan without the consent of such Eligible Employee.

Article 7
Miscellaneous

7.1 Section 409A.

(a) The severance payments and other benefits under this Plan are intended, where possible, to comply with the "short term deferral exception" and the "involuntary separation pay exception" to Section 409A of the Code. Accordingly, the provisions of this Plan applicable to the severance payments described in Article 4 and the determination of the Participant's Separation from Service due to termination of the Participant's employment without Cause or the

Participant's resignation for Good Reason shall be applied, construed and administered so that those payments and benefits qualify for one or both of those exceptions, to the maximum extent allowable. However, to the extent any payment or benefit to which the Participant becomes entitled under this Plan is deemed to constitute an item of deferred compensation subject to the requirements of Section 409A of the Code, the provisions of this Plan applicable to that payment or benefit shall be applied, construed and administered so that such payment or benefit is made or provided in compliance with the applicable requirements of Section 409A of the Code. In addition, should there arise any ambiguity as to whether any other provisions of this Plan would contravene one or more applicable requirements or limitations of Section 409A of the Code and the Treasury Regulations thereunder, such provisions shall be interpreted, administered and applied in a manner that complies with the applicable requirements of Section 409A of the Code and the Treasury Regulations thereunder. The severance payments under Article 4 shall be treated as a right to a series of separate payments for purposes of Section 409A of the Code.

(b) Notwithstanding any provision in this Plan to the contrary, no payment or distribution under this Plan which constitutes an item of deferred compensation under Section 409A of the Code and becomes payable by reason of the Participant's termination of employment with the Company will be made to the Participant until the Participant incurs a Separation from Service in connection with such termination of employment. For purposes of this Plan, each amount to be paid or benefit to be provided to the Participant shall be treated as a separate identified payment or benefit for purposes of Section 409A of the Code. In addition, no payment or benefit which constitutes an item of deferred compensation under Section 409A of the Code and becomes payable by reason of the Participant's Separation from Service will be made to the Participant prior to the ***earlier*** of (i) the first day of the seven (7)-month period measured from the date of such Separation from Service or (ii) the date of the Participant's death, if the Participant is deemed at the time of such Separation from Service to be a specified employee (as determined pursuant to Section 409A of the Code and the Treasury Regulations thereunder) and such delayed commencement is otherwise required in order to avoid a prohibited distribution under Section 409A(a)(2) of the Code. Upon the expiration of the applicable deferral period, all payments and benefits deferred pursuant to this Section 7.1(b) (whether they would have otherwise been payable in a single sum or in installments in the absence of such deferral) shall be paid or provided to the Participant in a lump sum on the first day of the seventh (7th) month after the date of the Participant's Separation from Service or, if earlier, the first day of the month immediately following the date the Company receives proof of the Participant's death. Any remaining payments or benefits due under this Plan will be paid in accordance with the normal payment dates specified herein.

(c) During the period the COBRA premium reimbursement arrangement remains in effect, the following provisions shall govern the arrangement: (i) the amount of the COBRA premiums eligible for reimbursement in any one calendar year during the Coverage Period shall not affect the amount of such costs eligible for reimbursement in any other calendar year for which such reimbursement is to be provided hereunder; (ii) no costs shall be reimbursed after the close of the calendar year following the calendar year in which those costs were incurred; and (iii) the Participant's right to the reimbursement of such costs cannot be liquidated or exchanged for any other benefit.

7.2 Not an Employment Contract. The adoption and maintenance of this Plan shall not be deemed to confer on any Participant any right to continue in the employ of the Employer Group, and shall not be deemed to interfere with the right of the Employer Group to discharge any person, with or without cause, or treat any person without regard to the effect that such treatment might have on the person as a Plan participant.

7.3 Benefits Non-Assignable. No right or interest of a participant in this Plan shall be assignable or transferable, in whole or in part, either directly or by operation of law or otherwise, including but not by way of limitation, execution, levy, garnishment, attachment, pledge, bankruptcy, assignments for the benefit of creditors, receiverships, or in any other manner, excluding transfer by operation of law as a result solely of mental incompetency.

7.4 Tax Withholding. The Company shall withhold any applicable income or employment taxes that are required to be withheld from the severance benefits payable under this Plan.

7.5 Applicable Law. This Plan is a welfare plan subject to ERISA and it shall be interpreted, administered, and enforced in accordance with that law.

7.6 Gender and Number. Any masculine pronouns used herein shall refer to both men and women, and the use of any term herein in the singular may also include the plural unless otherwise indicated by context.

7.7 Severability. If any provision of this Plan is held invalid or unenforceable by a court of competent jurisdiction, all remaining provisions shall continue to be fully effective.

7.8 Binding Agreement. This Plan shall be binding upon and inure to the benefit of the Company, its successors and assigns, and the Participants and their heirs, executors, administrators and legal representatives.

IN WITNESS WHEREOF, Sangamo Therapeutics, Inc. has caused this Plan to be executed by its duly authorized officer effective as of the Effective Date.

SANGAMO THERAPEUTICS, INC.

By: /s/ Alexander D. Macrae

Its: President and Chief Executive Officer

Exhibit A

GENERAL SETTLEMENT AND RELEASE AGREEMENT

This General Settlement and Release Agreement (the "Agreement") is by and between Sangamo Therapeutics, Inc., for itself and for all of its affiliated, related, parent and direct and indirect subsidiary companies, joint venturers and partnerships, successors and permitted assigns and each of them (collectively, the "Company"), on the one hand, and [*Participant*] ("the Executive") for [himself/herself], and the Executive's agents, representatives, heirs and assigns, on the other hand.

1. **Payments.** In full and complete consideration for the Executive's promises and undertaking set forth in this Agreement, following the eighth (8th) day following receipt by the Company of this fully executed Agreement from the Executive, the Company will provide the Executive the consideration, if any, to which the Executive is entitled pursuant to, and in accordance with the terms of, the Sangamo Therapeutics, Inc. Amended and Restated Executive Severance Plan, as amended and restated by the Compensation Committee of the Board of Directors of the Company on October 28, 2023, unless the signature on this Agreement is revoked pursuant to Section 8 below or any other conditions for receipt of the consideration have not been met.

2. **Release of Known and Unknown Claims.**

(a) It is understood and agreed by the parties to this Agreement that in consideration of the mutual promises and covenants contained in this Agreement, and after the opportunity to consult with counsel, the Executive irrevocably and unconditionally releases and forever discharges the Company, its parent, subsidiary and affiliated companies, and all of their past and present officers, directors, employees, agents and assigns (collectively, the "Released Parties"), from any and all causes of action, claims, actions, rights, judgments, obligations, damages, demands, accountings or liabilities of whatever kind or character, which the Executive may have against the Company or any of the Released Parties by reason of or arising out of, touching upon or concerning the Executive's employment, separation of the Executive's employment and reapplication for employment with the Company, or any statutory claims, or any and all other matters of whatever kind, nature or description, whether known or unknown, occurring prior to the date of the execution of this Agreement. The Executive acknowledges that this release of claims specifically includes, but is not limited to, any and all claims for fraud; breach of contract; breach of the implied covenant of good faith and fair dealing; inducement of breach; interference with contractual rights; wrongful or unlawful discharge or demotion; violation of public policy; sexual assault and battery; invasion of privacy; intentional or negligent infliction of emotional distress; intentional or negligent misrepresentation; conspiracy; defamation; unlawful effort to prevent employment; discrimination or harassment on the basis of age, race, color, sex, gender, national origin, ancestry, religious creed, physical or mental disability, medical condition, marital status, sexual orientation, genetic information or characteristics, or any other basis protected by applicable law; any claim under: Title VII of the Civil Rights Act of 1964 ("Title VII"); the Americans With Disabilities Act of 1990 ("ADA"); the Age Discrimination in Employment Act

of 1967 (“ADEA”); the Employee Retirement Income Security Act of 1974 (“ERISA”); the Equal Pay Act of 1963 (“EPA”); the Fair Labor Standards Act (“FLSA”); the Consolidated Omnibus Budget Reconciliation Act (“COBRA”); the Worker Adjustment and Retraining Notification Act (“WARN”); the Occupational Safety and Health Act (“OSHA”); the Lilly Ledbetter Fair Pay Act of 2009 (“Fair Pay Act”); the California Fair Employment and Housing Act (“FEHA”); the California Labor Code; and CalOSHA, or any other wrongful conduct, based upon events occurring prior to the date that this Agreement is executed by the Executive. Notwithstanding anything to the contrary herein, this Agreement shall not release the Executive's right, if any, to claims the Executive may have for: (i) indemnification pursuant to the bylaws of the Company or insurance policies of the Company, for any claims arising out of the Executive's conduct as an employee or officer of the Company during the Executive’s employment, (ii) unemployment, workers' compensation, state disability and/or paid family leave insurance benefits pursuant to the terms of applicable state law, (iii) continuation of existing participation in Company-sponsored group health benefit plans under COBRA and/or an applicable state counterpart law, (iv) any benefit entitlements that are vested as of the Executive's termination date pursuant to the terms of a Company-sponsored benefit plan governed by ERISA, (v) stock and/or vested option shares pursuant to the written terms and conditions of the Executive's existing stock option grants and agreements, existing as of the Executive’s termination date, (vi) violation of any federal, state or local statutory and/or public policy right or entitlement that, by applicable law, is not waivable, and (vii) any wrongful act or omission occurring after the date the Executive signs this Agreement. In addition, nothing in this Agreement prevents the Executive from filing a charge or complaint with the Equal Employment Opportunity Commission (the “EEOC”), the National Labor Relations Board (the “NLRB”), the Occupational Safety and Health Administration, the Securities and Exchange Commission (the “SEC”) or any other federal, state or local governmental or regulatory agency, entity, commission or official(s) (collectively, “Governmental Authorities”). This Agreement does not limit the Executive’s ability to communicate with any Governmental Authorities or otherwise participate in any investigation or proceeding that may be conducted by any Governmental Authorities, including providing documents or other information, without notice to the Company. While this Agreement does not limit the Executive’s right to receive an award for information provided to any Governmental Authorities (including, without limitation, the right to receive an award from the SEC’s whistleblower program), the Executive understands and agrees that, to the maximum extent permitted by law, the Executive is otherwise waiving any and all rights the Executive may have to individual relief, including monetary recovery, from Governmental Authorities or otherwise based on any claims that the Executive has released and the rights the Executive has waived by signing this Agreement.

(b) The Executive represents and warrants that the Executive has not assigned or subrogated any of the Executive’s rights, claims or causes of action, including any claims referenced in this Agreement, or authorized any other person or entity to assert such claims on the Executive’s behalf, and the Executive agrees to indemnify and hold harmless the Company and each of the Released Parties against any assignment of said rights, claims and/or causes of action.

3. **Waiver of Unknown Claims.**

(a) Releases of Unknown Claims/Waiver of Civil Code Section 1542. The parties agree that this Agreement is a full and final release of any and all claims and the Executive expressly waives the benefit of Section 1542 of the California Civil Code, which provides:

> "A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS WHICH THE CREDITOR OR RELEASING PARTY DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR AT THE TIME OF EXECUTING THE RELEASE AND THAT, IF KNOWN BY HIM OR HER, WOULD HAVE MATERIALLY AFFECTED HIS OR HER SETTLEMENT WITH THE DEBTOR OR RELEASED PARTY."

(b) The Executive hereby expressly waives and relinquishes all rights and benefits under Section 1542 of the California Civil Code and any law or legal principle of similar effect in any jurisdiction with respect to the Executive's release of claims herein, including but not limited to the release of unknown and unsuspected claims.

(c) The Executive acknowledges that the Executive has had the right to, and has been provided an opportunity to, consult with legal counsel, and the Executive expressly acknowledges and agrees that this Agreement is intended to include in its effect, without limitation, all claims which the Executive does not know or suspect to exist at the time of the execution of this Agreement, and that this Agreement contemplates the extinguishment of those claims.

(d) The Executive acknowledges and agrees that the Executive may later discover facts different from or in addition to those the Executive now knows or believes to be true in entering into this Agreement. The Executive agrees to assume the risk of the possible discovery of additional or different facts, including facts which may have been concealed or hidden, and agrees that this Agreement shall remain effective regardless of such additional or different facts. The Executive further acknowledges and agrees that neither the Company nor any of the other Released Parties had any duty to disclose any fact to the Executive prior to the execution of this Agreement.

4. **Permitted Disclosures and Actions.** Nothing in this Agreement shall prohibit or restrict the Executive from lawfully (A) initiating communications directly with, cooperating with, providing information to, causing information to be provided to, or otherwise assisting in an investigation by Governmental Authorities regarding actual or possible violations of any law or regulation; (B) responding to any inquiry or legal process directed to the Executive individually (and not directed to the Company and/or its subsidiaries) from any such Governmental Authorities; (C) testifying, participating or otherwise assisting in an action or proceeding by any

such Governmental Authorities relating to actual or possible violations of any law or regulation; or (D) making any other disclosures that are protected under the whistleblower provisions of any applicable law. The Executive agrees that (i) no one has interfered with the Executive's ability to report within the Company or to any Governmental Authorities possible violations of any law, and (ii) it is the Company's policy to encourage such reporting. Additionally, pursuant to the federal Defend Trade Secrets Act of 2016, the Executive shall not be held criminally or civilly liable under any federal or state trade secret law for the disclosure of a trade secret that: (a) is made (i) in confidence to a federal, state, or local government official, either directly or indirectly, or to an attorney; and (ii) solely for the purpose of reporting or investigating a suspected violation of law; or (b) is made to the Executive's attorney in relation to a lawsuit for retaliation against the Executive for reporting a suspected violation of law; or (c) is made in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal. Furthermore, nothing in this Agreement prohibits or restricts the Executive from engaging in communications or other activity protected under the National Labor Relations Act. Moreover, nothing in this Agreement waives the Executive's right to testify in an administrative, legislative or judicial proceeding concerning alleged criminal conduct or alleged unlawful acts in the workplace (including, but not limited to, sexual harassment) on the part of any of the Released Parties in the event that the Executive is required or requested to attend such a proceeding pursuant to a court order, subpoena or written request from an administrative agency or the legislature. In addition, nothing in this Agreement prevents the Executive from discussing or disclosing information about unlawful acts in the workplace, such as harassment or discrimination or any other conduct that the Executive has reason to believe is unlawful. Furthermore, this Agreement shall not in any way limit the Executive's right to disclose factual information related to a claim filed in a civil action or a complaint filed in an administrative action regarding any act described in California Code of Civil Procedure Section 1001(a), including (without limitation) an act of workplace harassment or discrimination, failure to prevent an act of workplace harassment or discrimination, or an act of retaliation against a person for reporting harassment or discrimination, as described in subdivisions (a), (h), (i), (j) and (k) of Section 12940 of the California Government Code. Nor does this Agreement require the Executive to obtain prior authorization from the Company before engaging in any conduct described in this paragraph, or to notify the Company that the Executive has engaged in any such conduct.

5. **Non-Admission of Liability.** The Executive expressly recognizes that this Agreement shall not in any way be construed as an admission by the Company or any of the other Released Parties of any unlawful or wrongful acts whatsoever against the Executive or any other person or entity. The Company and each of the Released Parties expressly denies any violation of any policy or procedure, or of any state or federal law or regulation. The Company and each of the Released Parties also specifically denies any liability to or wrongful acts against the Executive, or any other person, on the part of themselves or any other employees or agents of the Company. This Agreement shall not be admissible in any proceeding as evidence of or any admission by the Company of any violation of any law or regulation or wrongful act. This Agreement may, however, be introduced in any proceeding to enforce this Agreement.

6. **No Filing of Claims.** The Executive specifically represents that the Executive has no pending complaints or actions against the Company, other than any claims or charges with Governmental Authorities described in Section 2(a), above, or any of the other Released Parties with any state or federal court or any local, state or federal agency, division or department based on any events occurring prior to the date of execution of this Agreement.

7. **ADEA Waiver and Advice of Counsel.** The Executive acknowledges that by entering into this Agreement, the Executive is knowingly and voluntarily waiving and releasing any rights the Executive may have under the Age Discrimination in Employment Act ("ADEA"), and that this Agreement satisfies the requirements of the Older Workers' Benefit Protection Act, 29 USC Section 626 (f). The Executive also acknowledges that the consideration provided for the waiver and release provided in Sections 2 and 3 above is in addition to anything of value to which the Executive was already entitled. The Executive further acknowledges that the Executive has been advised by this writing that (i) the Executive's waiver and release do not apply to any rights or claims that may arise after the execution date of this Agreement; (ii) the Executive has the right to consult an attorney prior to executing this Agreement; and (iii) the Executive has up to twenty-one (21) calendar days after the Separation Date (or after the date the Executive receives this Agreement, if later than the Separation Date) to seek the advice of counsel and to consider the effects of this Agreement upon the Executive's legal rights (the "Consideration Period") (although the Executive may choose to voluntarily execute this Agreement earlier). To the extent that the Executive has signed the Agreement without obtaining the advice of counsel or before expiration of the Consideration Period, the Executive is expressly waiving the Executive's right to consider the Agreement for any remaining portion of that 21-day period, and the Executive acknowledges and agrees that the Executive's decision to shorten the Consideration Period is knowing and voluntary and is not induced by the Company through fraud, misrepresentation, or a threat to withdraw or alter the severance offer prior to the expiration of the Consideration Period, or by offering more favorable terms for signing the Agreement prior to the expiration of the Consideration Period. The Executive acknowledges and agrees that any discussion between the Executive and the Company or any of the Released Parties concerning the terms and conditions of this Agreement does not extend the Consideration Period.

8. **Revocation Period.** The Executive acknowledges that the Executive has been informed that, after the Executive signs this Agreement, the Executive has the right to revoke the Executive's signature for a period of seven (7) calendar days from the date that the Executive signs the Agreement. To be effective, the revocation must be in writing, signed by the Executive, and delivered to Whitney Jones via e-mail at wjones@sangamo.com on or before 5:00 p.m. Pacific time on the seventh (7th) calendar day following the date the Executive signs this Agreement. The Executive acknowledges and agrees that the Company has no obligation to comply with the terms of this Agreement until the Revocation Period has expired without revocation, at which time this Agreement will become effective and enforceable.

9. **Nondisparagement.** Subject to the protected communications and other activity described in Section 4, above ("Permitted Disclosures and Actions"), the Executive agrees not to disparage any of the Released Parties in any manner likely to be harmful to any of them or their business, research and development programs, business reputation or personal reputation. Likewise, the Company agrees to instruct the Company's current members of its Executive Leadership Team to not disparage the Executive in any manner likely to be harmful to the Executive's business reputation or personal reputation. Notwithstanding the foregoing, the parties may respond accurately and fully to any question, inquiry or request for information when required by legal process. For purposes of this Agreement, "disparage" shall mean to make, publish or communicate any negative, belittling or derogatory statement, whether oral or written. The parties agree that the obligations under this section include (without limitation) refraining from publishing any disparaging remark on any blog, online social network or any other website (including, but not limited to, www.glassdoor.com), whether or not such comments are made anonymously..

10. **Confidentiality.** Subject to the protected communications and other activity described in Section 4, above ("Permitted Disclosures and Actions"), the Executive agrees to comply with the Employee Confidential Information and Invention Assignment Agreement ("CIIAA") that the Executive entered into with the Company on [*insert date*]. The Executive consents and agrees that the Executive will not, at any time, disclose the existence of this Agreement and/or the terms of the Executive's severance benefits to any person, firm, company, association, or entity or the press or media for any reason or purpose whatsoever, other than to the Executive's attorney, the Executive's immediate family and to the Executive's accountant or financial advisor for tax purposes, except to the extent such disclosure is necessary to enforce the terms of this Agreement or is otherwise required by law. If the Executive is served with any subpoena, court order, or other legal process seeking disclosure of any such information, the Executive shall promptly send to the Company, within forty-eight (48) hours, via email to Scott Willoughby at swilloughby@sangamo.com, such subpoena, court order, or other legal process so that the Company may exercise any applicable legal remedies. The Executive agrees and acknowledges that a violation of this paragraph by the Executive shall be a material breach of this Agreement.

11. **Company Property.** By entering into this Agreement, the Executive represents that the Executive has returned to the Company all Company property, including all papers, records, data, notes, drawings, files, documents, samples, devices, products, equipment, and other materials, including copies and in whatever form, relating to the business of the Company that the Executive possesses or created as a result of the Executive's employment with the Company, whether or not confidential, and all keys, equipment (including, but not limited to, computer hardware, software and printers, wireless handheld devices, cellular phones and pagers), access or credit cards, company identification, company vehicles and any other property owned by the Company in the Executive's possession or control and has left intact all electronic documents of the Company, including, but not limited to, those that the Executive developed or helped to develop during the Executive's employment. Company property includes all originals plus hard copies and electronic versions of all documents, such as e-mails, facsimiles, files, handbooks,

letters, manuals, memoranda, power points, records and reports. The Executive further confirms that the Executive has cancelled all accounts for the Executive's benefit, if any, in the Company's name, including, but not limited to, credit cards, telephone charge cards, cellular phone and/or pager accounts and computer accounts. In addition, if the Executive has used any non-Company computer, server, or e-mail system to receive, store, review, prepare or transmit any Company confidential or proprietary data, materials or information, the Executive represents that the Executive has provided the Company with a computer-useable copy of such information and has permanently deleted and expunged such Company confidential or proprietary information from those systems. The Executive further acknowledges and agrees that the Executive no longer has access to and does not claim ownership of any Company cloud storage, social medial accounts, or similar accounts.

12. **Remedies for Breach of this Agreement.**

(a) Injunctive Relief. In the event of a breach of the provisions of this Agreement, the Executive agrees that any remedy at law for any breach or threatened breach of the provisions of such paragraphs and the covenants set forth therein, will be inadequate and, accordingly, each party hereby stipulates that the other is entitled to obtain injunctive relief for any such breaches or threatened breaches (without the necessity of posting a bond). The injunctive relief provided for in this paragraph is in addition to, and is not in limitation of, any and all other remedies at law or in equity otherwise available to the applicable party.

(b) Remedies Cumulative. The remedies in this paragraph are not exclusive, and the parties shall have the right to pursue any other legal or equitable remedies to enforce the terms of this Agreement.

(c) Governing Law; Consent to Jurisdiction. This Agreement shall be deemed to be a contract made under, and shall be construed in accordance with, the laws of the State of California, without giving effect to conflict of laws principles thereof. All questions concerning the construction, validity, and interpretation of this Agreement shall be governed by and construed in accordance with the domestic laws of the State of California, without giving effect to any choice of law or conflict of law provision that would cause the application of the laws of any jurisdiction other than the State of California. Each of the parties hereby irrevocably and unconditionally consents to submit to the exclusive jurisdiction of the courts of the State of California or the United States District Court for the Northern District of California for any litigation, proceeding or action arising out of or relating to this Agreement (and agrees not to commence any litigation, proceeding or action relating thereto except in such courts). Each of the parties hereby irrevocably and unconditionally waives any objection to the laying of venue of any litigation, proceeding or action arising out of this Agreement or thereby in the courts of the State of California or the United States District Court for the Northern District of California and hereby further irrevocably and unconditionally waives and agrees not to plead or claim in any such court that any such litigation, proceeding or action brought in any such court has been brought in an inconvenient forum.

13. **Counsel.** The parties hereby acknowledge that they have had the reasonable opportunity to consult with attorneys of their own choice concerning the terms and conditions of this Agreement, that they have read and understand this Agreement, that they are fully aware of the contents of this Agreement and that they enter into this Agreement and accept its terms and conditions freely and knowingly and with a full understanding of its legal effect.

14. **No Other Amounts Due.** The Executive acknowledges that the Company has paid the Executive all wages, salaries, bonuses, benefits and other amounts earned and accrued, less applicable deductions, and that the Company has no obligation to pay any additional amounts other than the payment(s) described in Section 1 ("Payments") of this Agreement. The Executive acknowledges that the Executive has been reimbursed by the Company for all business expenses incurred in conjunction with the performance of the Executive employment and that no other reimbursements are owed to the Executive.

15. **Entire Agreement.** This is the entire agreement between the Executive and the Company with respect to the subject matter hereof and the Agreement supersedes any previous negotiations, agreements and understandings. The Executive acknowledges that the Executive has not relied on any oral or written representations by the Company (or its counsel) or any of the other Released Parties to induce the Executive to sign this Agreement, other than the terms of this Agreement. No modifications of this Agreement can be made except in writing signed by the Executive and the Company's Chief Executive Officer.

16. **Section 409A.** It is the intention of the parties that the provisions of this Agreement comply with the requirements of Section 409A of the Internal Revenue Code ("Section 409A") and the Treasury Regulations thereunder. Accordingly, to the extent there is any ambiguity as to whether one or more provisions of this Agreement would otherwise contravene the applicable requirements or limitations of Section 409A, then those provisions shall be interpreted and applied in a manner that does not result in a violation of the applicable requirements or limitations of Section 409A and the Treasury Regulations thereunder. In no event may the Executive, directly or indirectly, designate the calendar year of a payment.

17. **Severability.** If any provision of this Agreement is held to be illegal, invalid or unenforceable under existing or future laws effective during the term of this Agreement, such provisions shall be fully severable, the Agreement shall be construed and enforced as if such illegal, invalid or unenforceable provision had never comprised a part of this Agreement, and the remaining provisions of this Agreement shall remain in full force and effect and shall not be affected by the illegal, invalid or unenforceable provision or by its severance from this Agreement. Furthermore, in lieu of such illegal, invalid or unenforceable provision, there shall be added automatically as part of this Agreement a provision as similar in terms to such illegal, invalid or unenforceable provision as may be possible and be legal, valid and enforceable.

18. **Ambiguities.** Both parties have the right and have had a reasonable opportunity to consult with an attorney regarding the terms of this Agreement and, thus, it is understood and agreed that the general rule that ambiguities are to be construed against the drafter shall not apply to this Agreement. In the event that any language of this Agreement is found to be ambiguous, each party shall have an opportunity to present evidence as to the actual intent of the parties with respect to any such ambiguous language.

19. **Waiver.** No waiver by any party of any breach of any term or provision of this Agreement shall be a waiver of any preceding, concurrent or succeeding breach of this Agreement or of any other term or provision of this Agreement. No waiver shall be binding on the part of, or on behalf of, any other party entering into this Agreement.

20. **Attorneys' Fees.** In the event that any party to this Agreement asserts a claim for breach of this Agreement or seeks to enforce its terms, the prevailing party in any such proceeding shall be entitled to recover costs and reasonable attorneys' fees.

THE SIGNATORIES HAVE CAREFULLY READ THIS ENTIRE AGREEMENT. THEY HAVE THE RIGHT AND HAVE HAD A REASONABLE OPPORTUNITY TO CONSULT WITH AN ATTORNEY REGARDING THE TERMS OF THIS AGREEMENT. THE SIGNATORIES FULLY UNDERSTAND THE FINAL AND BINDING EFFECT OF THIS AGREEMENT. THE ONLY PROMISES MADE TO ANY SIGNATORY ABOUT THIS AGREEMENT, AND TO SIGN THIS AGREEMENT, ARE CONTAINED IN THIS AGREEMENT. THE SIGNATORIES ARE SIGNING THIS AGREEMENT VOLUNTARILY.

PLEASE READ CAREFULLY. THIS SETTLEMENT AGREEMENT AND GENERAL RELEASE INCLUDES A RELEASE OF KNOWN AND UNKNOWN CLAIMS AND OF ANY RIGHTS OR CLAIMS ARISING UNDER THE AGE DISCRIMINATION IN EMPLOYMENT ACT OF 1967.

[*signature page to follow*]

IN WITNESS WHEREOF, the parties have executed this General Settlement and Release Agreement on the dates set forth below.

SANGAMO THERAPEUTICS, INC.:

_____

DATE:_____

EXECUTIVE:

_____

DATE:_____

Exhibit 31.1

CERTIFICATION

I, Alexander D. Macrae, certify that:

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

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

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

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

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

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

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

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

5. The registrant's other certifying officer(s) 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: November 1, 2023

/s/ ALEXANDER D. MACRAE
Alexander D. Macrae
President and Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION

I, Prathyusha Duraibabu, certify that:

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

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

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

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

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

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

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

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

5. The registrant's other certifying officer(s) 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: November 1, 2023

/s/ PRATHYUSHA DURAIBABU

Prathyusha Duraibabu
Senior Vice President and Chief Financial Officer
(Principal Financial and Accounting Officer)

Exhibit 32.1

Certifications Pursuant to 18 U.S.C. §1350, as Adopted
Pursuant to §906 of the Sarbanes-Oxley Act of 2002

Pursuant to the requirement set forth in Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and Section 1350 of Chapter 63 of Title 18 of the United States Code (18 U.S.C. §1350), each of the undersigned hereby certifies in his or her capacity as an officer of Sangamo Therapeutics, Inc. (the "Company"), that, to the best of his or her knowledge:

(1) the Company's Quarterly Report on Form 10-Q for the period ended September 30, 2023, to which this Certification is attached as Exhibit 32.1 (the "Report") fully complies with the requirements of Section 13(a) or Section 15(d) of the Exchange Act; and

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

/s/ ALEXANDER D. MACRAE

Alexander D. Macrae
President and Chief Executive Officer
(Principal Executive Officer)

Date: November 1, 2023

/s/ PRATHYUSHA DURAIBABU

Prathyusha Duraibabu
Senior Vice President and Chief Financial Officer
(Principal Financial and Accounting Officer)

Date: November 1, 2023

This certification accompanies the Quarterly Report on Form 10-Q to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of Sangamo Therapeutics, Inc. under the Securities Act of 1933, as amended, or the Exchange Act (whether made before or after the date of the Form 10-Q), irrespective of any general incorporation language contained in such filing. A signed original of this written statement required by Section 906 of the Sarbanes-Oxley Act of 2002 has been provided to Sangamo Therapeutics, Inc. and will be retained by Sangamo Therapeutics, Inc. and furnished to the Securities and Exchange Commission or its staff upon request.