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 June 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 August 4, 2023, 177,111,718 shares of the issuer's common stock, par value $0.01 per share, were outstanding.

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SANGAMO THERAPEUTICS, INC.

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 a potential new collaboration partner for programs that were previously the subject of collaboration agreements;
- 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 restructuring and any future cost reduction measures;
- our estimates regarding the sufficiency of our cash resources and our expenses, capital requirements and need for additional financing, and our ability to obtain additional financing;
- conditions and events that raise substantial doubt about our ability to continue as a going concern;
- our ability to manage the growth of our business;
- 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:

- 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.
- 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 will need substantial additional funding to execute our operating plan and continue to operate as a going concern. We may be unable to raise additional capital on favorable terms, if at all, which would harm or preclude our ability to develop our technology and product candidates and could delay or terminate some or all of our programs. Future sales and issuances of equity securities could also result in substantial dilution to our stockholders.
- We rely heavily on collaborations with biopharmaceutical companies to generate revenues and develop, obtain regulatory approvals for and commercialize many 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 currently rely heavily on third-party manufacturers and have limited experience manufacturing products ourselves. 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 that the competition for these individuals is intense.
- Disease outbreaks or pandemics, such as COVID-19, could adversely impact our business and operations and the business and operations of our collaborators, manufacturers and other business partners. If such impacts become material, our revenues and product development efforts could be negatively impacted.
- 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, and have recorded, and may be required to record in the future, significant additional charges if our long-lived assets become impaired.

- If we fail to meet continued listing standards of the Nasdaq Stock Market LLC, 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 as a going concern would be substantially impaired.
- Our recent restructuring 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)

	June 30, 2023	December 31, 2022
ASSETS		
Current assets:		
Cash and cash equivalents	$ 66,830	$ 100,444
Marketable securities	76,271	177,188
Interest receivable	1,219	794
Accounts receivable	2,716	3,678
Prepaid expenses and other current assets	12,573	18,223
Total current assets	159,609	300,327
Marketable securities, non-current	39,037	29,845
Property and equipment, net	60,717	63,531
Intangible assets	—	50,729
Goodwill	—	37,552
Operating lease right-of-use assets	46,773	62,002
Other non-current assets	17,438	17,023
Restricted cash	1,500	1,500
Total assets	$ 325,074	$ 562,509
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 14,837	$ 22,418
Accrued compensation and employee benefits	13,118	21,506
Other accrued liabilities	18,964	16,007
Deferred revenues	6,873	51,780
Total current liabilities	53,792	111,711
Deferred revenues, non-current	—	109,377
Long-term portion of lease liabilities	36,373	38,986
Deferred income tax	—	6,270
Other non-current liabilities	1,267	1,207
Total liabilities	91,432	267,551
Commitments and contingencies		
Stockholders' equity:		
Preferred stock	—	—
Common stock	1,771	1,668
Additional paid-in capital	1,479,725	1,450,239
Accumulated deficit	(1,241,918)	(1,148,545)
Accumulated other comprehensive loss	(5,936)	(8,404)
Total stockholders' equity	233,642	294,958
Total liabilities and stockholders' equity	$ 325,074	$ 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 June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
Revenues	$ 6,835	$ 29,378	$ 164,792	$ 57,609
Operating expenses:				
Research and development	63,046	60,019	126,262	118,603
General and administrative	16,014	15,093	34,150	30,001
Impairment of goodwill and indefinite-lived intangible assets	51,347	—	89,485	—
Impairment of long-lived assets	—	—	20,433	—
Total operating expenses	130,407	75,112	270,330	148,604
Loss from operations	(123,572)	(45,734)	(105,538)	(90,995)
Interest and other income, net	2,802	2,643	6,095	3,985
Loss before income taxes	(120,770)	(43,091)	(99,443)	(87,010)
Income tax (benefit) expense	(6,264)	82	(6,070)	140
Net loss	$ (114,506)	$ (43,173)	$ (93,373)	$ (87,150)
Basic and diluted net loss per share	$ (0.66)	$ (0.29)	$ (0.54)	$ (0.59)
Shares used in computing basic and diluted net loss per share	174,325	148,158	171,445	147,194

See accompanying Notes to Condensed Consolidated Financial Statements.

SANGAMO THERAPEUTICS, INC.

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

	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
Net loss	$ (114,506)	$ (43,173)	$ (93,373)	$ (87,150)
Foreign currency translation adjustment	80	(6,108)	2,125	(8,012)
Net pension gain (loss)	—	56	(3)	75
Unrealized (loss) gain on marketable securities, net of tax	(258)	(153)	346	(1,236)
Comprehensive loss	$ (114,684)	$ (49,378)	$ (90,905)	$ (96,323)

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 June 30, 2023					
	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive (Loss) Income	Total Stockholders' Equity
	Shares	Amount				
Balances at March 31, 2023	171,771,568	$ 1,718	$ 1,467,062	$ (1,127,412)	$ (5,758)	$ 335,610
Issuance of common stock in at-the-market offering, net of offering expenses	4,286,831	43	5,358	—	—	5,401
Issuance of common stock upon exercise of stock options and vesting of restricted stock units, net of tax	260,561	3	(197)	—	—	(194)
Issuance of common stock under employee stock purchase plan	755,586	7	712	—	—	719
Stock-based compensation	—	—	6,790	—	—	6,790
Foreign currency translation adjustment	—	—	—	—	80	80
Net unrealized loss on marketable securities, net of tax	—	—	—	—	(258)	(258)
Net loss	—	—	—	(114,506)	—	(114,506)
Balances at June 30, 2023	177,074,546	$ 1,771	$ 1,479,725	$ (1,241,918)	$ (5,936)	$ 233,642

	Six Months Ended June 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	1,276,379	13	(1,316)	—	—	(1,303)
Issuance of common stock under employee stock purchase plan	755,586	7	712	—	—	719
Stock-based compensation	—	—	15,067	—	—	15,067
Foreign currency translation adjustment	—	—	—	—	2,125	2,125
Net pension loss	—	—	—	—	(3)	(3)
Net unrealized gain on marketable securities, net of tax	—	—	—	—	346	346
Net loss	—	—	—	(93,373)	—	(93,373)
Balances at June 30, 2023	177,074,546	$ 1,771	$ 1,479,725	$ (1,241,918)	$ (5,936)	$ 233,642

	Three Months Ended June 30, 2022					
	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive (Loss) Income	Total Stockholders' Equity
	Shares	Amount				
Balances at March 31, 2022	146,664,760	$ 1,467	$ 1,340,254	$ (1,000,244)	$ (6,955)	$ 334,522
Issuance of common stock in at-the-market offering, net of offering expenses	6,228,666	62	24,212	—	—	24,274
Issuance of common stock upon exercise of stock options and vesting of restricted stock units, net of tax	99,608	1	(171)	—	—	(170)
Issuance of common stock under employee stock purchase plan	359,468	4	1,111	—	—	1,115
Stock-based compensation	—	—	7,918	—	—	7,918
Foreign currency translation adjustment	—	—	—	—	(6,108)	(6,108)
Net pension gains					56	56
Net unrealized loss on marketable securities, net of tax	—	—	—	—	(153)	(153)
Net loss	—	—	—	(43,173)	—	(43,173)
Balances at June 30, 2022	153,352,502	$ 1,534	$ 1,373,324	$ (1,043,417)	$ (13,160)	$ 318,281

	Six Months Ended June 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	6,228,666	62	24,212	—	—	24,274
Issuance of common stock upon exercise of stock options and vesting of restricted stock units, net of tax	842,838	9	(1,746)	—	—	(1,737)
Issuance of common stock under employee stock purchase plan	359,468	4	1,111	—	—	1,115
Stock-based compensation	—	—	15,609	—	—	15,609
Foreign currency translation adjustment	—	—	—	—	(8,012)	(8,012)
Net pension gains	—	—	—	—	75	75
Net unrealized loss on marketable securities, net of tax	—	—	—	—	(1,236)	(1,236)
Net loss	—	—	—	(87,150)	—	(87,150)
Balances at June 30, 2022	153,352,502	$ 1,534	$ 1,373,324	$ (1,043,417)	$ (13,160)	$ 318,281

See accompanying Notes to Condensed Consolidated Financial Statements.

SANGAMO THERAPEUTICS, INC.

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

	Six Months Ended June 30,	
	2023	2022
Operating Activities:		
Net loss	$ (93,373)	$ (87,150)
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	20,433	—
Depreciation and amortization	7,745	5,716
(Accretion of discounts) amortization of premium on marketable securities	(1,865)	207
Amortization and other changes in operating lease right-of-use assets	4,018	4,225
Deferred income tax benefit	(6,377)	—
Stock-based compensation	15,067	15,609
Net changes in operating assets and liabilities:		
Interest receivable	(425)	60
Accounts receivable	962	11
Prepaid expenses and other assets	5,548	(4,992)
Accounts payable and other accrued liabilities	(3,101)	5,796
Accrued compensation and employee benefits	(8,450)	(6,618)
Deferred revenues	(154,284)	(43,772)
Lease liabilities	(2,455)	(2,121)
Other non-current liabilities	61	69
Net cash used in operating activities	(127,011)	(112,960)
Investing Activities:		
Purchases of marketable securities	(52,112)	(129,928)
Maturities of marketable securities	146,048	168,346
Purchases of property and equipment	(15,740)	(8,284)
Net cash provided by investing activities	78,196	30,134
Financing Activities:		
Proceeds from at-the-market offering, net of offering expenses	15,105	21,929
Taxes paid related to net share settlement of equity awards	(1,303)	(1,827)
Proceeds from exercise of stock options	—	90
Proceeds from issuance of common stock under employee stock purchase plan	719	1,115
Net cash provided by financing activities	14,521	21,307
Effect of exchange rate changes on cash, cash equivalents, and restricted cash	680	352
Net decrease in cash, cash equivalents, and restricted cash	(33,614)	(61,167)
Cash, cash equivalents, and restricted cash, beginning of period	101,944	180,372
Cash, cash equivalents, and restricted cash, end of period	$ 68,330	$ 119,205
Supplemental cash flow disclosures:		
Property and equipment included in unpaid liabilities	$ 4,909	$ 2,232

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 six months ended June 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, Capital Resources and Management's Plans

Sangamo is currently working on a number of long-term development projects that involve experimental technologies. The projects may 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 June 30, 2023, the Company had capital resources of $182.1 million consisting of cash, cash equivalents, and marketable securities. Management believes that the Company's existing cash, cash equivalents, and marketable securities, in combination with other planned cost reduction initiatives, will be sufficient to fund its operations for at least the next 12 months from the date these Condensed Consolidated Financial Statements are issued.

Under Accounting Standard Codification ("ASC") 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.

Substantial Doubt Raised

In performing the first step of the evaluation, the Company concluded that the following conditions raised substantial doubt about its ability to continue as a going concern:

- Net loss of $93.4 million and $87.2 million for the six months ended June 30, 2023 and 2022, respectively, and history of recurring net losses;
- The Company had an accumulated deficit of $1,241.9 million and $1,148.5 million as of June 30, 2023 and December 31, 2022, respectively; and

- The Company may generate negative operating cash flows in the future and will need additional funding to support its planned operations.

Consideration of Management's Plans

In performing the second step of this assessment, the Company is required to evaluate whether it is probable that its plans will be effectively implemented within one year after the Condensed Consolidated Financial Statements are issued and whether it is probable those plans will alleviate the substantial doubt about its ability to continue as a going concern.

The Company initiated a number of cost reduction measures in the quarter ended June 30, 2023, including a reduction in force, reduction of its manufacturing and allogeneic research footprints, reduction of new hires, and reduction in capital and ancillary expenditures. The Company has also identified several further potential actions that could be initiated in a timely manner to address the Company's liquidity needs over the twelve-month period from the date the Condensed Consolidated Financial Statements are issued, as follows:

- Deferral and reprioritization of certain additional research and development programs that would involve reduced program and headcount spend;
- Further reduction in force intended to extend the cash runway necessary to fund operations;
- Realignment of operating infrastructure including closing or downsizing facilities;
- Reduction in ancillary expenses such as travel and recruitment expenses; and
- Further reduction in non-critical capital and discretionary operating expenditures including personnel costs, additional equipment, lab improvements, efficiency projects, and business support spend.

Management Assessment of Ability to Continue as a Going Concern

The Company believes management's plans, as described more fully above, will provide sufficient liquidity to meet its financial obligations and maintain levels of liquidity over the twelve-month period from the date the Condensed Consolidated Financial Statements are issued. Therefore, management has concluded these plans alleviate the substantial doubt that was raised about the Company's ability to continue as a going concern for at least twelve months from the date that the Condensed Consolidated Financial Statements are issued. Determining the extent to which conditions or events raise substantial doubt about the Company's ability to continue as a going concern and the extent to which mitigating plans sufficiently alleviate any such substantial doubt requires significant judgment and estimation by the Company. The Company makes assumptions that management's plans will be effectively implemented and alleviate substantial doubt and its ability to continue as a going concern. The Company believes that the estimated values used in its going concern analysis are based on reasonable assumptions. However, such assumptions are inherently uncertain and actual results could differ materially from those estimates.

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.

Future Plans and Considerations

The Company will be required to raise substantial additional capital to fund its operations and support its research and development endeavors. In this regard, the Company is 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 the Company, on terms that are acceptable or at all. 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 could have a material adverse effect on the Company's business. If the Company raises additional capital through public or private equity offerings, including sales pursuant to the Company's at-the-market offering program with Jefferies LLC, the ownership interest of its existing stockholders will be diluted, and such dilution may be substantial, and the terms of any new equity securities may have a preference over, and include rights superior to, the Company's common stock. If the Company raises additional capital through royalty financings or other collaborations, strategic alliances or licensing arrangements with third parties, it may need to relinquish certain valuable rights to its product candidates, technologies, future revenue streams or research programs or grant licenses on terms that may not be favorable. If the Company raises additional capital through debt financing, the Company may be subject to specified financial covenants or covenants limiting or restricting its ability to take specific actions, such as incurring additional debt, making capital expenditures or pursuing certain transactions, any of which could restrict the Company's ability to commercialize its product candidates or operate as a business.

In addition, management's cost reduction plans are intended to reduce the Company's operating expenses and optimize its cash resources. The Company started to realize the benefit of certain of its cost reduction efforts beginning in the second quarter of 2023; however, there can be no assurance that the Company will fully realize the benefits of its cost reduction plans on the anticipated timeline, or at all.

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. 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, an increase in net income of $8.9 million, and an increase in the Company's basic and diluted earnings per share of $0.06 for the six months ended June 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 major collaboration agreements and research activity grants as a percentage of total revenues were as follows:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
Novartis Institutes for BioMedical Research, Inc.	35 %	37 %	7 %	34 %
Biogen MA, Inc.	32 %	34 %	82 %	37 %
Kite Pharma, Inc.	18 %	22 %	8 %	22 %
Sanofi S.A.	— %	6 %	— %	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):

	June 30, 2023	December 31, 2022	June 30, 2022	December 31, 2021
Cash and cash equivalents	$ 66,830	$ 100,444	$ 117,705	$ 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	$ 68,330	$ 101,944	$ 119,205	$ 180,372

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):

	June 30, 2023			
	Fair Value Measurements			
	Total	Level 1	Level 2	Level 3
Assets:				
Cash equivalents:				
Money market funds	$ 8,168	$ 8,168	$ —	$ —
Total	8,168	8,168	—	—
Marketable securities:				
U.S. government-sponsored entity debt securities	32,296	—	32,296	—
Commercial paper securities	41,838	—	41,838	—
Asset-backed securities	10,505	—	10,505	—
U.S. treasury bills	5,573	—	5,573	—
Certificates of deposit	25,096	—	25,096	—
Total	115,308	—	115,308	—
Total cash equivalents and marketable securities	$ 123,476	$ 8,168	$ 115,308	$ —

	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
June 30, 2023				
Assets				
Cash equivalents:				
Money market funds	$ 8,168	$ —	$ —	$ 8,168
Total	8,168	—	—	8,168
Marketable securities:				
U.S. government-sponsored entity debt securities	32,685	—	(389)	32,296
Commercial paper securities	41,881	—	(43)	41,838
Asset-backed securities	10,557	—	(52)	10,505
U.S. treasury bills	5,598	—	(25)	5,573
Certificates of deposit	25,131	—	(35)	25,096
Total	115,852	—	(544)	115,308
Total cash equivalents and marketable securities	$ 124,020	$ —	$ (544)	$ 123,476
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):

	June 30, 2023	December 31, 2022
Maturing in one year or less	$ 76,271	$ 177,188
Maturing after one year through five years	39,037	29,845
Total	$ 115,308	$ 207,033

There were no realized gains and losses on the sales of investments during the three and six months ended June 30, 2023 and 2022. Total unrealized gains for securities with net gains in accumulated other comprehensive income were not material for the three and six months ended June 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 or other impairment charges related to its marketable securities for the three and six months ended June 30, 2023 and 2022.

The Company had unrealized losses related to its marketable securities for the three and six months ended June 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 June 30, 2023 and December 31, 2022. Based on the scheduled maturities of its investments, the Company determined that it was more likely than not that it will hold these investments for a period of time sufficient for a recovery of its amortized cost basis. 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. For marketable securities, it also considers whether (i) it is more likely than not that the Company will be required to sell the debt securities before recovery of their amortized cost basis, and (ii) the amortized cost basis cannot be recovered as a result of credit losses. 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, including the assessment of the duration and severity of the unrealized losses and the Company's ability and intent to hold the investments until maturity, the Company determined that no allowance for credit losses related to its marketable securities was required at either June 30, 2023 or December 31, 2022.

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 June 30, 2023 and 2022 totaled 24,325,301 and 18,682,780, respectively.

NOTE 5—MAJOR CUSTOMERS, PARTNERSHIPS AND STRATEGIC ALLIANCES

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 zinc finger ("ZF") transcriptional regulators ("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 adeno-associated viruses ("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 June 30, 2023 and December 31, 2022, the Company had a receivable of $0.6 million 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 June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
Revenue related to Novartis agreement:				
Recognition of upfront license fee	$ 1,872	$ 8,622	$ 9,568	$ 15,640
Research services	554	2,306	2,613	4,183
Total	$ 2,426	$ 10,928	$ 12,181	$ 19,823

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 June 30, 2023 and December 31, 2022, the Company had a receivable of $0.4 million 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 six months ended June 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 June 30, 2023 and December 31, 2022, respectively.

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

	Three Months Ended June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
Revenue related to Biogen agreement:				
Recognition of license and other fixed consideration	$ 1,535	$ 7,306	$ 132,165	$ 14,612
Cost-sharing payments for research services, net variable consideration	669	2,746	2,341	6,633
Total	$ 2,204	$ 10,052	$ 134,506	$ 21,245

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 is

released into general and administrative expenses on a systematic basis consistent with the transfer of the services to Biogen in accordance with ASC Topic 340. The Company recognized as expense $0.03 million and $2.6 million during the three and six months ended June 30, 2023, respectively, and $0.1 million and $0.3 million during the three and six months ended June 30, 2022, respectively.

Kite Pharma, Inc.

In February 2018, the Company entered into a global collaboration and license agreement with Kite Pharma, Inc. ("Kite"), a Gilead Sciences, Inc. subsidiary, 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.

During the research program term and subject to certain exceptions, the Company is prohibited from researching, developing, manufacturing and commercializing, for the purpose of treating cancer, any cell therapy product that, as a result of ex vivo genome editing, expresses a CAR, TCR or NKR that is directed to a target expressed on or in a human cancer cell. After the research program term concludes and subject to certain exceptions, the Company will be prohibited from developing, manufacturing and commercializing, for the purpose of treating cancer, any cell therapy product that, as a result of ex vivo genome editing, expresses a CAR, TCR or NKR that is directed to a candidate target.

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. 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 June 30, 2023 and December 31, 2022, the Company had a receivable of $0.2 million and $0.7 million, respectively, and deferred revenue of $6.9 million and $19.4 million, respectively, related to this agreement. Changes in deferred revenue balances during the three and six months ended June 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 $7.4 million and $21.2 million, of which $1.5 million relates to fees allocated to options with material rights, as of June 30, 2023 and December 31, 2022, respectively. These amounts are expected to be recognized within the next twelve months. The timing of recognition will be affected by the volume of annual activity under the agreement and 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 June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
Revenue related to Kite agreement:				
Recognition of license fee fixed consideration	$ 1,110	$ 6,227	$ 12,550	$ 12,386
Research services variable consideration	121	107	989	256
Total	$ 1,231	$ 6,334	$ 13,539	$ 12,642

In March 2023, the Company recorded an adjustment to revenue related to a change in estimate in connection with the collaboration agreement with Kite. This adjustment was driven by a reduction in the estimated future level of the Company's research and development services under the agreement 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, an increase in net income of $8.9 million, and an increase in the Company's basic and diluted earnings per share of $0.06 for the six months ended June 30, 2023.

Sanofi S.A.

In January 2014, the Company entered into an exclusive worldwide collaboration and license agreement ("2014 Collaboration Agreement") to develop therapeutics for hemoglobinopathies, focused on beta thalassemia and sickle cell disease ("SCD"). The 2014 Collaboration Agreement was originally signed with BIMA, who subsequently assigned it to Bioverativ Inc., which was later acquired by Sanofi S.A ("Sanofi"). Under the 2014 Collaboration Agreement, the Company was originally jointly conducting two research programs: a beta thalassemia program, which was discontinued in the third quarter of 2021, and the SCD program, which resulted in the development of SAR445136 (now known as BIVV003), a ZFN, gene-edited cell therapy product candidate for the treatment of SCD. In December 2021, Sanofi notified the Company of its termination for convenience, effective June 28, 2022 (the "Termination Date"), of the 2014 Collaboration Agreement. A termination and transition agreement (the "Termination and Transition Agreement") was executed by the parties on September 6, 2022.

In the SCD program, the Company and Sanofi were jointly responsible for research and development activities prior to filing of an IND, but Sanofi was responsible for subsequent worldwide clinical development, manufacturing and commercialization of licensed products developed under the agreement. Subject to the terms of the agreement, the Company had granted Sanofi an exclusive, royalty-bearing license, with the right to grant sublicenses, to use certain ZF and other technology controlled by the Company for the purpose of researching, developing, manufacturing and commercializing licensed products developed under the agreement. The Company had also granted Sanofi a non-exclusive worldwide, royalty-free fully paid license with the right to grant sublicenses, under the Company's interest in certain other intellectual property developed pursuant to the agreement. During the term of the agreement, the Company was not permitted to research, develop, manufacture or commercialize, outside of the agreement, certain gene therapy products that target genes relevant to the licensed products.

Under the 2014 Collaboration Agreement, the Company received an upfront license fee of $20.0 million and was eligible to receive additional payments upon the achievement of specified clinical development, regulatory milestones, and sales milestones, as well as royalty payments for each licensed product based on net sales of such product. Sanofi was also to reimburse Sangamo for agreed upon costs incurred in connection with research and development activities conducted by Sangamo. Through the Termination Date, a total of $13.5 million was received based on achievement of clinical development milestones. No products have been approved and therefore no royalty fees have been or will be earned under the 2014 Collaboration Agreement.

In its termination notice to the Company, Sanofi indicated that its termination relates to Sanofi's change in strategic direction to focus on allogeneic universal genomic medicine approaches rather than autologous personalized cell therapies. As of the Termination Date, the 2014 Collaboration Agreement was terminated in its entirety and following the Termination Date, the Company will not be entitled to receive any further milestone payments or royalties from Sanofi. As of the Termination Date, Sanofi has no further obligations under the 2014 Collaboration Agreement to develop or to fund the development of any collaboration research programs under the 2014 Collaboration Agreement. The licenses granted to Sanofi under the 2014 Collaboration Agreement have been terminated, and the license rights have reverted to the Company.

As part of the Termination and Transition Agreement, Sanofi granted to the Company exclusive, worldwide, fully paid, royalty-free, perpetual, irrevocable licenses, with the right to grant sublicenses through multiple tiers, to certain of its intellectual property, to develop, manufacture, have manufactured, use, sell, offer to sell, import and otherwise commercialize BIVV003, the product candidate in development under the SCD program. The Company agreed to take on responsibilities for all clinical trials related to BIVV003, including completion of the ongoing clinical trial and the related long-term follow-up study. The Company also assumed all regulatory responsibilities related to BIVV003. Sanofi transferred and assigned to the Company all documentation, materials and contracts with third parties related to BIVV003, and the right to use certain Sanofi-owned or leased equipment related to BIVV003.

Sanofi has also agreed to reimburse the Company for the costs of conducting the ongoing clinical trial of BIVV003 and the costs of the long-term follow-up study through December 31, 2023, up to $7.0 million. In addition, should the Company elect not to continue the development of BIVV003 past December 31, 2023, Sanofi will become obligated to reimburse the Company for the costs of the long-term follow-up study incurred after 2023, up to $5.3 million. Sanofi's reimbursement obligations will terminate upon certain triggering events, including the Company's entering into a contract with a third party for collaboration, partnership, sale, licensing, or divestiture of BIVV003, or if the FDA permits early closure of the clinical trial and/or the long-term follow-up study.

The Company assessed the 2014 Collaboration Agreement in accordance with ASC Topic 606 and concluded that Sanofi was a customer under that arrangement. The Company identified the performance obligation within this arrangement as a license to the technology combined with ongoing research services activities. The Company concluded that the license was not distinct as it did not have stand-alone value to Sanofi without the research services. As a result, the Company recognized revenue from the upfront payment and the milestones based on progress of performance of the ongoing research services. The estimation of progress towards the satisfaction of the performance obligation and project cost was reviewed quarterly and adjusted, as needed, to reflect the Company's then current assumptions regarding the timing of its deliverables. Related costs and expenses under these arrangements have historically approximated the revenues recognized. Sanofi's December 2021 notice of termination of the 2014

Collaboration Agreement represented a modification that reduced the expected scope of the Company's services and the estimated transaction price and shortened the remaining performance timeline. Consistent with this change, all services provided by the Company under the 2014 Collaboration Agreement were completed by June 28, 2022, and all amounts ultimately included in the transaction price were recognized by such date. The final transaction price of $96.3 million included the upfront license fee of $20.0 million, two milestone payments in the aggregate amount of $13.5 million and reimbursement of research costs of $62.8 million. As of June 30, 2023 and December 31, 2022, the Company had no receivable or deferred revenue related to the 2014 Collaboration Agreement.

The Company concluded that Sanofi is not a customer under the Termination and Transition Agreement as Sanofi is not entitled to receive and cannot use the results of the ongoing clinical trial or the long-term follow-up study. This relationship is also not a collaboration in the scope of ASC Topic 808, *Collaborative Arrangements*. The Company concluded that the assets acquired from Sanofi do not represent a business, as substantially all of their value is concentrated in the acquired or re-acquired licenses to intellectual property. The Company has no obligation to repay Sanofi for its ongoing funding of the clinical trial or long-term follow-up study costs. Therefore, the Company will recognize Sanofi reimbursements as reductions to its research and development expense. During the three and six months ended June 30, 2023, the Company decreased its research and development expense by $0.7 million and $1.3 million, respectively, for these reimbursements, which is included within prepaid expenses and other current assets on the Company's Condensed Consolidated Balance Sheet as of June 30, 2023.

Under the 2014 Collaboration Agreement, the Company recognized revenue of $1.8 million and $3.3 million during the three and six months ended June 30, 2022, respectively, and no revenues have been recognized during the three and six months ended June 30, 2023.

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 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. The total amount of potential clinical development, intellectual property, regulatory and first commercial sale milestone payments, assuming the achievement of all achievable milestones in the agreement, is up to $455.0 million, which includes up to $280.0 million 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. To date, two milestones of $55.0 million in aggregate have been achieved and paid, however no products have been approved and therefore no royalty fees have been earned under the agreement.

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 and no revenues have been recognized during the three and six months ended June 30, 2023 and 2022.

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 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 and no revenues have been recognized during the three and six months ended June 30, 2023 and 2022.

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 and six 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, exceed its carrying value, no impairment loss was recognized. This represents a level 3 nonrecurring fair value measurement.

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, as discussed above, 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 June 30,		Six Months Ended June 30,	
	2023	2022	2023	2022
Research and development	$ 3,887	$ 4,591	$ 8,760	$ 9,261
General and administrative	2,903	3,327	6,307	6,348
Total stock-based compensation expense	$ 6,790	$ 7,918	$ 15,067	$ 15,609

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. During the three and six months ended June 30, 2023, the Company sold 4,286,831 and 8,249,261 shares of its common stock for net proceeds of approximately $5.4 million and $15.1 million respectively. During the three and six months ended June 30, 2022, the Company sold 6,228,666 shares of its common stock for net proceeds of approximately $24.3 million.

NOTE 9—RESTRUCTURING CHARGES

On April 26, 2023, the Company executed a restructuring of operations and a corresponding reduction in workforce (the "Restructuring"), designed to reduce costs and increase focus on the following strategic priorities: (i) preclinical neurology disease epigenetic regulation portfolio, including its Nav 1.7 and prion disease programs, (ii) potential Phase 3 trial of isaralgagene civaparvovec, the Company's gene therapy to treat Fabry disease, and (iii) continuation of the Phase 1/2 STEADFAST study, which evaluates TX200, its wholly owned autologous CAR-Treg cell therapy to treat patients receiving an HLA-A2 mismatched kidney from a living donor. The 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. The Company incurred approximately $5.3 million of expenses related to the Restructuring in the three and six months ended June 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 a majority of the cash payments

related to the Restructuring to be substantially completed in the third quarter of 2023, and the Restructuring to be completed by the end of the third quarter of 2024.

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

	Six Months Ended June 30, 2023
Balance at December 31, 2022	$ —
Restructuring charges	5,337
Cash payments	(1,180)
Non-cash adjustments	(305)
Balance at June 30, 2023	$ 3,852

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 June 30, 2023 the Company recorded income tax benefit of $6.3 million. The income tax expense during the three months ended June 30, 2022 was immaterial. During the six months ended June 30, 2023 and 2022, the Company recorded income tax benefit of $6.1 million and income tax expense of $0.1 million, respectively.

The Company continues to maintain a full valuation allowance on its U.S. federal and state net deferred tax assets and on the Sangamo France net deferred tax assets, as the Company believes it is not more likely than not that these benefits will be realized. The tax benefit for the three and six months ended June 30, 2023 was primarily related to the impairment of the IPR&D asset. The tax expense for the six months ended June 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

In July 2023, the Company entered into a research evaluation and option agreement with Prevail Therapeutics ("Prevail"), a wholly owned subsidiary of Eli Lilly and Company, which granted Prevail rights to evaluate certain proprietary engineered cerebrospinal fluid ("CSF")-administered AAV capsids developed by the Company in exchange for an upfront payment. 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 all targets, and a Prevail product is approved in both the U.S. and Europe for each target, the Company would be eligible to receive exercise fees and developmental milestones of up to approximately $415.0 million and commercial milestones of up to approximately $775.0 million, in addition to tiered royalties based on net sales of Prevail products incorporating the licensed capsids. If Prevail exercises its option for a target, it would lead and fund all further development, manufacturing and commercialization of Prevail products incorporating the licensed capsids for that target.

In July 2023, the Company entered into a research evaluation, option and license agreement with Chroma Medicine ("Chroma") to develop epigenetic medicines leveraging ZFPs for sequence-specific DNA recognition of targets outside of the central nervous system, in exchange for an upfront payment. If Chroma exercises its option for any or all targets following a research evaluation period, the Company would be eligible to receive an option exercise payment, in addition to potential development and commercial milestone payments, as well as tiered royalties on any Chroma products incorporating the licensed ZFPs. If Chroma exercises its option for a target, Chroma would lead and fund all research, development, manufacturing, and commercialization of products incorporating the licensed Sangamo ZFPs for that target.

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 our in-house manufacturing capabilities.

Corporate Updates

- 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 adeno-associated virus, or AAV, capsids developed by us in exchange for an upfront payment. 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 all targets, and a Prevail product is approved in both the United States and Europe for each target, we would be eligible to receive exercise fees and developmental milestones of up to approximately $415.0 million and commercial milestones of up to approximately $775.0 million, in addition to tiered royalties based on net sales of Prevail products incorporating the licensed capsids. 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.
- 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, in exchange for an upfront payment. If Chroma exercises its option for any or all targets following a research evaluation period, we would be eligible to receive an option exercise payment, in addition to potential development and commercial milestone payments, as well as tiered royalties on any Chroma products incorporating the licensed ZFPs. 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.

Clinical Programs Updates

Fabry Disease

- Since our last update on April 26, 2023, an additional two 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 22 patients dosed to date. A total of 22 sites are now active and recruiting. Progress in the study continues with additional male and female patients currently in screening.
- In May 2023, we received U.S. FDA Fast Track Designation for isaralgagene civaparvovec. U.S. FDA Fast Track 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 Orphan Drug Designation to isaralgagene civaparvovec.

- In August 2023, we received productive written feedback from the FDA on our proposed Phase 3 trial strategy that seeks to maximize the potential patient population for isaralgagene civaparvovec using two studies. Based on feedback received from the FDA to date, we do not expect that a head-to-head comparison with enzyme replacement therapy would be required in the study of naïve and pseudo-naïve patients.
- We are currently seeking additional regulatory feedback from the FDA, and we expect to submit a proposed Phase 3 trial protocol to the FDA as early as the end of 2023.

Renal Transplant Rejection

- The Phase 1/2 STEADFAST study evaluating TX200, our wholly-owned autologous CAR-Treg cell therapy candidate for renal transplant rejection, continues to progress. The product candidate continues to be generally well tolerated in all three patients dosed to date.
- A total of six study sites in four countries are now actively enrolling patients with additional patients in pre-screening for potential enrollment in the study.
- The Safety Monitoring Committee endorsed moving to cohort 2 after reviewing the safety data from cohort 1.
- Manufacturing of the dose has been completed for the first patient in the second cohort, who recently received a kidney transplant. Dosing of this fourth patient is expected to occur in the third quarter of 2023.
- We continue to explore opportunities to accelerate dose escalation with regulators. Scientific advice has been received and the protocol amendment to accelerate dose escalation has been submitted to regulatory authorities. We have recently received one country full approval of the protocol amendment and other approvals have been received. We plan to share initial data from this study by the end of 2023.

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 following the dosing of all patients required to support the primary analysis.
- 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.

Preclinical Programs

Our preclinical development is focused in two innovative priority areas: (i) epigenetic regulation for neurological diseases and (ii) CAR-Treg cell therapies for autoimmune disorders. Other indications for our preclinical programs include inflammatory bowel disease, multiple sclerosis, cancer, amyotrophic lateral sclerosis, and Huntington's disease, some of which are the subject of collaboration agreements.

We made a strategic decision earlier this year to increase focus on certain of our preclinical programs as one of the key areas of our business, including Nav1.7 and prion disease as the cornerstones to the neurology epigenetic regulation portfolio. The Nav1.7 pathway to potentially treat chronic neuropathic pain has been identified as our flagship program in our newly prioritized 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 also presented updated animal model data from our wholly owned prion disease program at ASGCT, showing that Sangamo's ZF-Rs significantly reduce expression of the prion protein in the brain, extend lifespan and limit formation of toxic prion aggregates. In June 2023, we entered into a license agreement with Voyager Therapeutics, or Voyager, for a capsid that we expect to use in our prion disease program. Under the terms of the agreement, we received a non-exclusive license to combine an intravenously, or IV-administered Voyager capsid with a Sangamo ZF-R designed to treat prion disease. Voyager's IV-administered capsid has been shown in animal models to achieve the specific central nervous system coverage we believe is required for this indication. We are solely responsible for leading and funding the research, development and manufacture and commercialization of any Sangamo product candidates using the Voyager capsid. Voyager is eligible to receive certain license fees and royalties on potential commercial sales of any Sangamo products using the Voyager capsid, and, in the event the prion program is out-licensed by us, a portion of all licensing revenues received with respect to this program. We continue to expect to submit an IND for a product candidate treating prion disease in 2025.

Identification and selection of our own novel engineered AAV capsids enhanced for central nervous system delivery continues to progress. Data presented at ASGCT described the identification of multiple novel AAV capsids exhibiting characteristics consistent with enhanced blood brain barrier transit.

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 platform 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 $2.0 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.

In-House Manufacturing

We currently operate an AAV manufacturing facility in Brisbane, California and a cell therapy manufacturing facility in Valbonne, France. Our manufacturing strategy is to provide greater flexibility, quality and control by building a balanced and necessary capacity achieved through our in-house manufacturing and contract manufacturing organization, or CMO, partnerships, investing in manufacturing processes and analytics and developing a strong supply chain.

For additional information regarding our business, see "Business" in Part I, Item 1 of the 2022 Annual Report.

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 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 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, our ability to raise additional capital 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. Our failure to obtain adequate and timely funding will adversely affect our ability to continue as a going concern and our ability to develop our technology and products candidates.

See the section titled "Risk Factors" included in Part I, Item 1A of the 2022 Annual Report for additional information on risks and uncertainties related to the COVID-19 pandemic.

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.

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 collaboration agreement with Kite Pharma Inc., or Kite, and 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 received from Kite through the end of the collaboration agreement will be recognized as revenue as the related costs are incurred and collection is reasonably assured. 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. As we continue to advance our product candidates into and through the clinic, we expect the growth of our business to require increased general and administrative expenses.

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 six months ended June 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 Six Months Ended June 30, 2023 and 2022

Revenues

	Three Months Ended June 30, (in thousands, except percentage values)				Six Months Ended June 30, (in thousands, except percentage values)			
	2023	2022	Change	%	2023	2022	Change	%
Revenues	$ 6,835	$ 29,378	$ (22,543)	(77%)	$ 164,792	$ 57,609	$ 107,183	186%

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 subject to the Biogen and Novartis collaborations.

The decrease of $22.5 million in revenues for the three months ended June 30, 2023, compared to the same period in 2022, was primarily attributed to decreases of $8.5 million and $7.8 million in revenue relating to our collaboration agreements with Novartis and Biogen, respectively, due to the termination of collaboration agreements in June 2023, a decrease of $5.1 million in revenue relating to our collaboration agreement with Kite, and a decrease of $1.8 million in revenue relating to our collaboration agreement with Sanofi, due to the termination of collaboration agreement in June 2022. These decreases were partially offset by an increase of $0.6 million in revenue relating to our license agreements with Sigma-Aldrich Corporation and Open Monoclonal Technology, Inc. (now Ligand Pharmaceuticals Inc.).

The increase of $107.2 million in revenues for the six months ended June 30, 2023, compared to the same period in 2022, was primarily attributed to:

- an increase of $113.3 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 $2.7 million in revenue relating to our license agreement with Sigma-Aldrich Corporation;
- an increase of $1.1 million in revenue relating to our license agreement with Open Monoclonal Technology, Inc. (now Ligand Pharmaceuticals Inc.); and

- an increase of $0.9 million in revenue relating to our collaboration agreement with Kite, primarily due to a reduction in the estimated future level of the research and development services and as a result, future project costs, which resulted in an adjustment to the measure of proportional cumulative performance.

These increases were partially offset by a decrease of $7.6 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 termination of such collaboration agreements in June 2023 and June 2022, respectively.

Operating expenses

	Three Months Ended June 30,				Six Months Ended June 30,			
	(in thousands, except percentage values)				(in thousands, except percentage values)			
	2023	2022	Change	%	2023	2022	Change	%
Operating expenses:								
Research and development	$ 63,046	$ 60,019	$ 3,027	5%	$ 126,262	$ 118,603	$ 7,659	6%
General and administrative	16,014	15,093	921	6%	34,150	30,001	4,149	14%
Impairment of goodwill and indefinite-lived intangible assets	51,347	—	51,347	100%	89,485	—	89,485	100%
Impairment of long-lived assets	—	—	—	—	20,433	—	20,433	100%
Total operating expenses	$ 130,407	$ 75,112	$ 55,295	74%	$ 270,330	$ 148,604	$ 121,726	82%

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 increase of $3.0 million in research and development expenses for the three months ended June 30, 2023, compared to the same period in 2022, was primarily attributable to higher compensation and other personnel costs mainly due to restructuring-related charges, higher depreciation expense, and higher facilities and infrastructure-related costs as we advance our preclinical and clinical pipeline. The increases were partially offset by lower lab supply expenses primarily due to the termination of collaboration agreements with Biogen and Novartis, and reimbursement of certain research and development expenses by Sanofi. Stock-based compensation expense included in research and development expenses was $3.9 million and $4.6 million for the three months ended June 30, 2023 and 2022, respectively.

The increase of $7.7 million in research and development expenses for the six months ended June 30, 2023, compared to the same period in 2022, was primarily attributable to higher compensation and other personnel costs mainly due to restructuring-related charges, higher facilities, infrastructure and information technology costs, and depreciation expense as we advance our preclinical and clinical pipeline. Stock-based compensation expense included in research and development expenses was $8.8 million and $9.3 million for the six months ended June 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 our restructuring of operations and corresponding reduction in workforce, or the Restructuring, 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 earlier stage product candidates into clinical trials.

The length of time required to complete our development programs and our development costs for those programs may be impacted by the 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 product candidates are being developed in multiple therapeutic areas, and we do not yet know how many of those therapeutic areas we will continue to pursue. In this regard, in connection with the Restructuring, we have paused further development of certain preclinical programs following conclusion of collaborations with Biogen and Novartis. 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 increase of $0.9 million in general and administrative expenses for the three months ended June 30, 2023, compared to the same period in 2022, was primarily attributable to higher compensation and other personnel costs mainly due to restructuring-related charges. Stock-based compensation expense included in general and administrative expenses was $2.9 million and $3.3 million for the three months ended June 30, 2023 and 2022, respectively.

The increase of $4.1 million in general and administrative expenses for the six months ended June 30, 2023, compared to the same period in 2022, was primarily attributable to Biogen contract cost asset amortization primarily due to a change in estimate driven by a notification of termination of the collaboration agreement, which resulted in increase in the measure of proportional cumulative performance, higher compensation and other personnel costs mainly due to restructuring-related charges, and higher external professional service costs. Stock-based compensation expense included in general and administrative expenses was $6.3 million and $6.3 million for the six months ended June 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 Restructuring, as we continue to build out our product portfolio and advance our product candidates into the clinic, we expect higher general and administrative expenses to support the growth of the business.

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

During the three and six months ended June 30, 2023, we recognized impairment charges of $51.3 million and $109.9 million, respectively. During the three months ended March 31, 2023, we experienced a sustained decline in our stock price and related market capitalization, our collaboration agreements with Biogen and Novartis terminated, and equity values in the biotechnology industry continued to decline. As a result of these factors, we concluded our goodwill and certain long-lived assets were impaired. Based on this analysis, we recognized a pre-tax goodwill impairment charge of $38.1 million and long-lived asset impairment charge of $20.4 million during the three months ended March 31, 2023.

During the three months ended June 30, 2023, we experienced a continued decline in our stock price and related market capitalization, we initiated actions including seeking external financing or deferral and reprioritization of certain research and development programs, and equity values in the biotechnology industry continued to decline. As a result, we concluded our indefinite-lived intangible assets were impaired due to reassessment of the fair value of the asset taking into consideration the factors discussed above. Based on this analysis, we recognized a pre-tax 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. 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 $2.8 million and $2.6 million for the three months ended June 30, 2023 and 2022, respectively. The increase of $0.2 million for the three months ended June 30, 2023, compared to the same period in 2022, was primarily driven by an increase of $1.7 million in interest income reflecting increases in market interest rates and an increase of $1.1 million related to fluctuations in foreign currency exchange rates. These increases were partially offset by a $2.6 million benefit received in 2022 from Employee Retention Credit under the Coronavirus Aid, Relief, and Economic Security Act.

Interest and other income, net was $6.1 million and $4.0 million for the six months ended June 30, 2023 and 2022, respectively. The increase of $2.1 million for the six months ended June 30, 2023, 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 and $1.8 million

related to fluctuations in foreign currency exchange rates. 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 a decrease of $0.3 million in research tax credits.

Income tax (benefit) expense

Income tax benefit was $6.3 million and $6.1 million for the three and six months ended June 30, 2023, respectively, and the income tax expense was $0.1 million for the three and six months ended June 30, 2022. The increase for the three and six months ended June 30, 2023, compared to the same period in 2022, was primarily driven by the reduction of the deferred tax liability due to impairment of the associated indefinite-lived intangible assets.

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 June 30, 2023, we had cash, cash equivalents, and marketable securities totaling $182.1 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 June 30, 2023. During the three and six months ended June 30, 2023, we sold 4,286,831 and 8,249,261 shares of its common stock for net proceeds of approximately $5.4 million and $15.1 million respectively.

Under Accounting Standards Codification, or ASC, Topic 205-40, *Presentation of Financial Statements—Going Concern*, we have the responsibility to evaluate whether conditions and/or events could raise substantial doubt about our ability to meet our future financial obligations as they become due within twelve months after the date that the Condensed Consolidated Financial Statements included in this Quarterly Report on Form 10-Q are issued. We initiated a number of cost reduction measures in the second quarter of 2023 including a reduction in force, reduction of our manufacturing and allogenic research footprints, reduction of new hires, and reduction in capital and ancillary expenditures. We have also identified several further potential actions that could be initiated in a timely manner to address our liquidity needs, as follows:

- Deferral and reprioritization of certain additional research and development programs that would involve reduced program and headcount spend;
- Further reduction in force intended to extend the cash runway necessary to fund operations;
- Realignment of operating infrastructure including closing or downsizing facilities;
- Reduction in ancillary expenses such as travel and recruitment expenses; and
- Further reduction in discretionary, non-critical capital and operating expenditures including personnel costs, additional equipment, lab improvements, efficiency projects, and business support spend.

We believe management's plans, as described above, sufficiently alleviate the risk of substantial doubt about our ability to continue as a going concern for at least twelve months from the date that the Condensed Consolidated Financial Statements included in this Quarterly Report on Form 10-Q are issued. We make assumptions about the probability that management's plans will be effectively implemented and alleviate substantial doubt and our ability to continue as a going concern. However, such assumptions are inherently uncertain and actual results could differ materially from those estimates. In this regard, we could use our available capital resources sooner than we currently expect and changing circumstances, some of which may be beyond our control, could cause us to consume capital significantly faster than we currently anticipate, and we may need to seek additional funds sooner than planned.

We will be required 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 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 could have a material adverse effect on our business. While we expect a majority of the cash payments related to the Restructuring to be substantially completed in the third quarter of 2023, and the Restructuring to be complete by the end of the third 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 Restructuring. 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, which could otherwise accelerate our liquidity needs and could force us to further curtail or suspend 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, 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 or we may determine that for internal resource allocation purposes or for other reasons to abandon development of these programs. In any event, we would require substantial additional funding in order to progress the programs that were the subject of these collaborations.

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, 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.

Cash Flows

Operating activities

Net cash used in operating activities was $127.0 million for the six months ended June 30, 2023, primarily due to:

- net loss of $93.4 million, adjusted for non-cash goodwill, indefinite-lived intangible assets, and long-lived asset impairment charges of $109.9 million, other non-cash expenses related to stock-based compensation of $15.1 million, depreciation and amortization of $7.7 million, and amortization of operating lease right-of-use assets of $4.0 million, offset by income tax benefit of $6.4 million related to reversal of the deferred tax liability as a result of impairment on the associated indefinite-lived intangible assets and accretion of discount on marketable securities of $1.9 million; and
- decrease in deferred revenues of $154.3 million, mainly attributed to the impact of the termination related contract modification for our collaboration agreement with Biogen and a change in estimate for our collaboration agreement with Kite, a decrease in accrued compensation and employee benefits by $8.5 million, mainly attributed to bonus pay-outs, a decrease in accounts payable and other accrued liabilities by $3.1 million, and a decrease in lease liabilities by $2.5 million. These were partially offset by decrease in prepaid expenses and other assets by $5.5 million, and a decrease in accounts receivable by $1.0 million.

Net cash used in operating activities was $113.0 million for the six months ended June 30, 2022, primarily reflecting our net loss of $87.2 million, a decrease in deferred revenues of $43.8 million, a decrease in accrued compensation and employee benefits by $6.6 million, an increase in prepaid expenses and other assets by $5.0 million, and a decrease in lease liabilities by $2.1 million. These decreases were partially offset by $25.8 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 $5.8 million increase in accounts payable and other accrued liabilities.

Investing activities

Net cash provided by investing activities was $78.2 million for the six months ended June 30, 2023, related to maturities of marketable securities of $146.0 million, partially offset by purchases of marketable securities of $52.1 million, and purchases of property and equipment of $15.7 million.

Net cash provided by investing activities was $30.1 million for the six months ended June 30, 2022, related to maturities of marketable securities of $168.3 million, partially offset by purchases of marketable securities of $129.9 million, and purchases of property and equipment of $8.3 million.

Financing activities

Net cash provided by financing activities was $14.5 million for the six months ended June 30, 2023, mostly 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 $1.3 million.

Net cash provided in financing activities was $21.3 million for the six months ended June 30, 2022, mostly related to $22.5 million of proceeds from the at-the-market offering, net of offering expenses of $0.6 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 $1.8 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, 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 next 12 months will be substantial, and we need to raise substantial additional capital 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 could have a material adverse effect on our business.

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. If adequate funds are not available, or if the terms of potential funding sources are unfavorable, our business and our ability to advance our product candidate pipeline would be harmed. Our future capital requirements will depend on many forward-looking factors, including the following:

- 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 six months ended June 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 June 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 June 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 June 30, 2023. Based on that evaluation, as of June 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 June 30, 2023 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

We 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 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 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. For example, we made the strategic decision in 2022 to halt further material investments in our BIVV003 sickle cell disease program beyond completion of the Phase 1/2 PRECIZN-1 study in order to prioritize deployment of resources to our Fabry and TX200 programs. While we have launched a search for a collaboration partner who can progress this program to a potential Phase 3 trial, we may not be successful in doing so in a timely manner, on acceptable terms or at all, and as a result, we could miss valuable opportunities to capitalize on the potential of the BIVV003 program. Likewise, 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 identify new collaboration partners who can progress some of the programs that were the subject of these collaborations, 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 or we may determine that for internal resource allocation purposes or for other reasons to abandon development of these programs. As a result, we could miss valuable opportunities to capitalize on the potential of the 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.

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 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 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 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 $93.4 million, $192.3 million and $178.3 million for the six months ended June 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 product candidates. 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 our operations.

We will need substantial additional funding to execute our operating plan and continue to operate as a going concern. We may be unable to raise additional capital on favorable terms, if at all, which would harm or preclude our ability to develop our technology and product candidates and could delay or terminate some or all of our programs. Future sales and issuances of equity securities could 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 expect capital outlays and operating expenditures to increase over the next several years as we expand our infrastructure and research and product development activities. Moreover, we have concluded that there exists substantial doubt about our ability to continue to operate as a going concern. While we currently believe that management's plans sufficiently alleviate the risk of substantial doubt about our ability to continue as a going concern for at least twelve months from the date that the Condensed Consolidated Financial Statements included in this Quarterly Report on Form 10-Q are issued, we make assumptions about the probability that management's plans will be effectively implemented and alleviate substantial doubt about our ability to continue as a going concern. However, such assumptions are inherently uncertain and actual results could differ materially from those estimates. In this regard, we could use our available capital resources sooner than we currently expect and changing circumstances, some of which may be beyond our control, could cause us to consume capital significantly faster than we currently anticipate, and we may need to seek additional funds sooner than planned.

Regardless, in order to remove substantial doubt about our ability to continue as a going concern, we will be required 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 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 could have a material adverse effect on our business, or we may be required to cease operations. In this regard, in April 2023, we announced a restructuring of operations and a reduction in force, or the Restructuring, and a significant reduction in our internal manufacturing and allogeneic research footprints in California. While we expect the Restructuring to be complete by the end of the third 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 Restructuring. However, we may not achieve the expected benefits of these cost reduction measures and other cost reduction plans on the anticipated timeline, or at all, which could otherwise accelerate our liquidity needs and could force us to further curtail or suspend 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, 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 or we may determine that for internal resource allocation purposes or for other reasons to abandon development of these programs. In any event, we would require substantial additional funding in order to progress the programs that were the subject of these collaborations.

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, 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. For example, our ability to raise additional capital 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 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 as a going concern and our ability to develop our technology and products candidates.

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 certain of our clinical trials for some of our product candidates. 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.

Several 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 many of 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, such as the recent 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. We may not be able to identify a suitable

partner or negotiate a favorable collaboration agreement, and we may not have sufficient resources and expertise internally, 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 product candidates to treat hemophilia A and 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 material investments in our SCD program and, accordingly, do not plan to continue developing BIVV003 beyond completion of this study. Although we are currently seeking a potential collaboration partner to advance the development of BIVV003 beyond this study, we cannot guarantee that we will be able to successfully secure any such collaboration in a timely manner, on acceptable terms or at all. In such case, the continued development of BIVV003 could be further delayed or precluded altogether, in which case may choose to discontinue the BIVV003 program. Any further delays to or discontinuance of this program could have an adverse impact on our business, results of operations, financial condition and prospects.

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. 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.

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 candidate to treat severe hemophilia A. 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 restructuring may not result in anticipated savings, could result in total costs and expenses that are greater than expected and could disrupt our business.

In April 2023, we announced a restructuring 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.

If we fail to meet continued listing standards of the Nasdaq Stock Market LLC, 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 as a going concern would be substantially impaired.

Our common stock is currently listed on the Nasdaq Global Select Market. The Nasdaq Stock Market LLC, or Nasdaq, has minimum requirements that a company must meet in order to remain listed on the Nasdaq Global Select Market. These requirements include maintaining a minimum closing bid price of $1.00 per share, or the Bid Price Requirement. While the closing price of our common stock has remained above the minimum closing bid price of $1.00 per share from January 1, 2023 through the date of filing of this report, on June 1, 2023, our common stock traded as low as $1.07 per share and in the future, the closing bid price of our common stock may fall below $1.00 per share. If the closing bid price of our common stock were to remain below $1.00 per share for 30 consecutive trading days, or we do not meet other Nasdaq listing requirements, we would fail to be in compliance with Nasdaq’s listing standards. There can be no assurance that we will continue to meet the Bid Price Requirement, or any other Nasdaq continued listing requirement, in the future. If we fail to meet these requirements, including the Bid Price Requirement and requirements to maintain minimum levels of stockholders' equity or market values of our common stock, Nasdaq may notify us that we have failed to meet the minimum listing requirements and initiate the delisting process. If our common stock is delisted, the liquidity of our common stock would be adversely affected 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 as a going concern would be substantially impaired.

We have recently recorded significant impairment charges, and we may be required to record in the future significant additional charges if our long-lived assets become 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 six months ended June 30, 2023, we recognized impairment charges of $51.3 million and $109.9 million, respectively. We have now fully impaired our goodwill and indefinite-lived intangible 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 AND USE OF PROCEEDS

None.

ITEM 3. DEFAULTS UPON SENIOR SECURITIES

Not applicable.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

ITEM 5. OTHER INFORMATION

None.

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 2018 Equity Incentive Plan of Sangamo Therapeutics, Inc. (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed June 2, 2023).
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 June 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: August 8, 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)

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: August 8, 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: August 8, 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 June 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: August 8, 2023

/s/ PRATHYUSHA DURAIBABU

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

Date: August 8, 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.