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

FORM 10-Q

(Mark One)

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

For the quarterly period ended September 30, 2017

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)	**(IRS Employer Identification No.)**

501 Canal Blvd
Richmond, California 94804
(Address of principal executive offices)

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

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 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 and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted 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 and post 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	☐ (Do not check if a smaller reporting company)	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 November 3, 2017, 84,520,951 shares of the issuer's common stock, par value $0.01 per share, were outstanding.

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SANGAMO THERAPEUTICS, INC.

PART I. FINANCIAL INFORMATION

PART II. OTHER INFORMATION

Unless 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, where appropriate, our wholly owned subsidiaries.

ZFP Therapeutic®, Engineering Genetic Cures®, and Pioneering Genetic Cures® are registered trademarks of Sangamo Therapeutics, Inc. 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 with respect to our operations, research, development and commercialization activities, clinical trials, operating results and financial condition. These statements involve known and unknown risks, uncertainties and other factors which 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 include, but are not limited to, statements about:

- our strategy;
- product development and commercialization of our products;
- clinical trials;
- partnering, acquisition and other strategic transactions;
- revenues from existing and new collaborations;
- our research and development and other expenses;
- sufficiency of our cash resources;
- 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 terms such as: “anticipates,” “believes,” “continues,” “could,” “estimates,” “expects,” “intends,” “may,” “plans,” “seeks,” “should” and “will.” These statements reflect our current views with respect to future events and are based on assumptions and subject to risks and uncertainties. Given these risks and uncertainties, you should not place undue reliance on these forward-looking statements. We discuss many of these risks in greater detail under the headings “Risk Factors” and “Management’s Discussion and Analysis of Financial Conditions and Results of Operations” in this Quarterly Report. Except as required by law, we undertake no obligation to update any forward-looking statements to reflect events or circumstances arising after the date of such statements. Readers are cautioned not to place undue reliance on the forward-looking statements, which speak only as of the date of this Quarterly Report.

PART I. FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

SANGAMO THERAPEUTICS, INC.

CONDENSED CONSOLIDATED BALANCE SHEETS
(Unaudited; in thousands, except share and per share amounts)

	September 30, 2017	December 31, 2016
ASSETS		
Current assets:		
Cash and cash equivalents	$ 29,894	$ 22,061
Marketable securities	206,810	120,474
Interest receivable	483	224
Accounts receivable	3,433	4,972
Prepaid expenses	1,720	1,849
Total current assets	242,340	149,580
Marketable securities, non-current	16,325	—
Property and equipment, net	8,500	6,557
Goodwill	1,585	1,585
Other assets	1,041	169
Total assets	$ 269,791	$ 157,891
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable and accrued liabilities	$ 10,112	$ 6,261
Accrued compensation and employee benefits	4,474	2,885
Deferred revenues	28,357	4,145
Total current liabilities	42,943	13,291
Deferred revenues, non-current	36,326	4,460
Build-to-suit lease obligation	3,870	3,945
Total liabilities	83,139	21,696
Commitments and contingencies		
Stockholders' equity:		
Common stock, $0.01 par value; 160,000,000 shares authorized, 84,104,791 and 70,871,902 shares issued and outstanding at September 30, 2017 and December 31, 2016, respectively	841	709
Additional paid-in capital	668,330	576,377
Accumulated deficit	(482,388)	(440,911)
Accumulated other comprehensive (loss) income	(131)	20
Total stockholders' equity	186,652	136,195
Total liabilities and stockholders' equity	$ 269,791	$ 157,891

See accompanying notes.

SANGAMO THERAPEUTICS, INC.

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

	Three months ended September 30,		Nine Months Ended September 30,	
	2017	2016	2017	2016
Revenues:				
Collaboration agreements	$ 11,759	$ 2,728	$ 23,042	$ 10,031
Research grants	53	95	448	436
Total revenues	11,812	2,823	23,490	10,467
Operating expenses:				
Research and development	18,425	17,008	46,351	51,728
General and administrative	6,422	5,021	19,734	21,468
Total operating expenses	24,847	22,029	66,085	73,196
Loss from operations	(13,035)	(19,206)	(42,595)	(62,729)
Interest and other income, net	681	238	1,118	668
Loss before income taxes	(12,354)	(18,968)	(41,477)	(62,061)
Benefit from income taxes	—	3	—	27
Net loss	$ (12,354)	$ (18,965)	$ (41,477)	$ (62,034)
Basic and diluted net loss per share	$ (0.15)	$ (0.27)	$ (0.55)	$ (0.88)
Shares used in computing basic and diluted net loss per share	83,750	70,618	75,814	70,493

See accompanying notes.

SANGAMO THERAPEUTICS, INC.

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

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2017	2016	2017	2016
Net loss	$ (12,354)	$ (18,965)	$ (41,477)	$ (62,034)
Change in unrealized gain (loss) on available-for-sale securities, net of tax	12	(14)	(131)	77
Comprehensive loss	$ (12,342)	$ (18,979)	$ (41,608)	$ (61,957)

See accompanying notes.

SANGAMO THERAPEUTICS, INC.

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

	Nine Months Ended September 30,	
	2017	**2016**
Operating Activities:		
Net loss	$ (41,477)	$ (62,034)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	1,030	745
Amortization of (discount) premium on marketable securities	(310)	159
Stock-based compensation	6,969	13,128
Taxes paid related to net share settlement of equity awards	(71)	(534)
Benefit from income taxes	—	(27)
Other	—	54
Net changes in operating assets and liabilities:		
Interest receivable	(259)	(3)
Accounts receivable	1,539	1,039
Prepaid expenses and other assets	(743)	(725)
Accounts payable and accrued liabilities	3,676	(1,919)
Accrued compensation and employee benefits	1,589	89
Deferred revenues	56,078	(4,087)
Net cash provided by (used in) operating activities	28,021	(54,115)
Investing Activities:		
Purchases of marketable securities	(229,595)	(188,129)
Maturities of marketable securities	127,093	200,497
Purchases of property and equipment	(2,873)	(509)
Net cash (used in) provided by investing activities	(105,375)	11,859
Financing Activities:		
Proceeds from public offering of common stock, net of issuance costs	81,573	—
Proceeds from issuance of common stock	3,614	760
Net cash provided by financing activities	85,187	760
Net increase (decrease) in cash and cash equivalents	7,833	(41,496)
Cash and cash equivalents, beginning of period	22,061	69,482
Cash and cash equivalents, end of period	$ 29,894	$ 27,986
Supplemental disclosure of noncash investing activities:		
Property and equipment included in accrued liabilities	$ 50	$ 2,202

See accompanying notes.

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

Basis of Presentation

The accompanying unaudited condensed consolidated financial statements of Sangamo Therapeutics, Inc. ("Sangamo" or the "Company") have been prepared in accordance with U.S. generally accepted accounting principles 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 generally accepted accounting principles for complete financial statements. In the opinion of management, all adjustments (consisting of normal recurring adjustments) considered necessary for a fair presentation have been included. Operating results for the three and nine months ended September 30, 2017 are not necessarily indicative of the results that may be expected for the year ending December 31, 2017. The condensed consolidated balance sheet data at December 31, 2016 were derived from the audited consolidated financial statements included in Sangamo's Annual Report on Form 10-K for the year ended December 31, 2016, (the "2016 Annual Report"), as filed with the SEC. The accompanying condensed consolidated financial statements and related financial information should be read in conjunction with the audited financial statements and footnotes thereto for the year ended December 31, 2016, included in the 2016 Annual Report.

Use of Estimates

The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the amounts reported in the 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, 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.

Revenue Recognition

Revenues from research activities made under strategic partnering agreements and collaborations are recognized as the services are provided when there is persuasive evidence that an arrangement exists, delivery has occurred, the price is fixed or determinable, and collectability is reasonably assured. Revenue generated from research and licensing agreements typically includes upfront signing or license fees, cost reimbursements, research services, minimum sublicense fees, milestone payments and royalties on future licensee's product sales.

For revenue agreements with multiple element arrangements, such as license and development agreements, entered into on or after January 1, 2011, the Company allocates revenue to each non-contingent element based on the relative selling price of each element. When applying the relative selling price method, the Company determines the selling price for each deliverable using Vendor Specific Objective Evidence ("VSOE") of selling price or Third Party Evidence ("TPE") of selling price. If neither exists, the Company uses Estimated Selling Price ("ESP") for that deliverable. Revenue allocated is then recognized when the basic four revenue recognition criteria are met for each element. The collaboration and license agreements, as amended, if applicable, entered into with (i) Shire International GmbH, formerly Shire AG ("Shire"), in January 2012, and (ii) Bioverativ Inc. ("Bioverativ"), the blood disorder spin-off of Biogen Inc., formerly Biogen Idec MA Inc. ("Biogen") in January 2014 were evaluated under these amended accounting standards.

For the Company's arrangement entered into May 2017 with Pfizer, Inc. ("Pfizer"), the Company recognizes revenue as a single unit of account as the license, research and development activities cannot be separated and therefore do not have standalone value.

Additionally, the Company may be entitled to receive certain milestone payments which are contingent upon reaching specified objectives. These milestone payments are recognized as revenue in full upon achievement of the milestone if there is substantive uncertainty at the date the arrangement is entered into that the objectives will be achieved and if the achievement is based on the Company's performance.

Minimum annual sublicense fees are also recognized as revenue in the period in which such fees are due. Royalty revenues are generally recognized when earned and collectability of the related royalty payment is reasonably assured. The Company recognizes cost reimbursement revenue under collaborative agreements as the related research and development costs for services are rendered assuming all other applicable revenue recognition criteria have been met. Deferred revenue represents the portion of research or license payments received which have not been earned.

Sangamo's research grants are typically multi-year agreements and provide for the reimbursement of qualified expenses for research and development as defined under the terms of the grant agreement. Revenue under grant agreements is recognized when the related qualified research expenses are incurred.

Recent Accounting Standards

In March 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2016-09, *Compensation – Stock Compensation* (Topic 718) ("ASU 2016-09"). ASU 2016-09 involves several aspects of the accounting for share-based transactions, including the income tax consequences, classification of awards as either equity or liabilities, how to account for forfeitures, and classification on the statement of cash flows. The amendments in this update are effective for the Company for its fiscal year 2017. As a result of the adoption of ASU 2016-09, the Company recognized current and prior excess tax benefits related to the exercise of options in its income tax provision. As a result of the Company's historic and current losses and valuation allowance applied to its deferred tax assets, the gross cumulative effect when considering the federal and state tax impact is $7.5 million. The Company has elected to prospectively apply the amendments related to classifying cash flows related to excess tax benefits as an operating activity. For the quarter ended September 30, 2017 excess tax benefits were classified as an operating activity on the consolidated statement of cash flows, along with other income tax cash flows. The Company has made a policy election to account for forfeitures as they occur. This election was adopted using the prospective approach resulting in an immaterial cumulative effect on retained earnings at the beginning of the period. Prior to the adoption, forfeitures were accounted for using an estimated forfeiture rate.

In February 2016, the FASB issued ASU No. 2016-02 *Leases* ("ASU 2016-02"). ASU 2016-02 amends a number of aspects of lease accounting, including requiring lessees to recognize almost all leases with a term greater than one year as a right-of-use asset and corresponding liability, measured at the present value of the lease payments. The guidance will become effective for the Company beginning in the first quarter of 2019 with early adoption permitted and will be adopted using a modified retrospective approach. The Company is evaluating the impact of the adoption of this standard on its consolidated financial statements, and expects that its operating lease commitments will be subject to the new standard and recognized as right-of-use assets and operating lease liabilities upon adoption, which will increase the Company's total assets and total liabilities as compared to amounts prior to adoption.

In May 2014, the FASB issued ASU 2014-09 *Revenue from Contracts with Customers* ("ASU 2014-09"). This standard outlines a single comprehensive model for entities to use in accounting for revenue arising from contracts with customers and supersedes most current revenue recognition guidance, including industry-specific guidance. The main principle of ASU 2014-09 is to recognize revenues when promised goods or services are transferred to customers in an amount that reflects the consideration that is expected to be received for those goods or services. ASU 2014-09 provides companies with two implementation methods: (i) apply the standard retrospectively to each prior reporting period presented (full retrospective application); or (ii) apply the standard retrospectively with the cumulative effect of initially applying the standard as an adjustment to the opening balance of retained earnings of the annual reporting period that includes the date of initial application (modified retrospective application). The Company elected to apply the modified retrospective application. This guidance is effective for annual reporting periods beginning after December 15, 2017, including interim periods within that reporting period. The Company has performed a preliminary assessment and continues to evaluate the impact of the pending adoption of ASU 2014-09 on its consolidated financial statements and has determined that the collaborations with Pfizer, Bioverativ, Shire, Dow AgroSciences LLC ("DAS") and Sigma-Aldrich Corporation, which was acquired by Merck KGaA and renamed MilliporeSigma ("Sigma") are within its scope. The Company is assessing the various components of these collaborations under ASC 2014-09 including the upfront license payment, milestones, and research and development services. At this time the Company is evaluating the impact to its financial position and results of operations upon adoption of ASU 2014-09.

NOTE 2—FAIR VALUE MEASUREMENT

The Company measures certain financial assets and liabilities at fair value on a recurring basis, including cash equivalents, and available-for sale-securities. The fair values of these assets were 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 measurement and unobservable (i.e., supported by little or no market activity).

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

	September 30, 2017 Fair Value Measurements			
	Total	Level 1	Level 2	Level 3
Assets:				
Cash equivalents:				
Money market funds	$ 14,710	$ 14,710	$ —	$ —
Total	14,710	14,710	—	—
Marketable securities:				
Commercial paper securities	106,727	—	106,727	—
Corporate debt securities	80,126	—	80,126	—
U.S. government-sponsored entity debt securities	36,282	—	36,282	—
Total	223,135	—	223,135	—
Total cash equivalents and marketable securities	$ 237,845	$ 14,710	$ 223,135	—

	December 31, 2016 Fair Value Measurements			
	Total	Level 1	Level 2	Level 3
Assets:				
Cash equivalents:				
Money market funds	$ 18,992	$ 18,992	$ —	$ —
Total	18,992	18,992	—	—
Marketable securities:				
Commercial paper securities	23,185	—	23,185	—
Corporate debt securities	10,004	—	10,004	—
U.S. government-sponsored entity debt securities	87,285	—	87,285	—
Total	120,474	—	120,474	—
Total cash equivalents and marketable securities	$ 139,466	$ 18,992	$ 120,474	$ —

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, listed 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—MARKETABLE SECURITIES

The Company classifies its marketable securities as available-for-sale and records its investments at estimated fair value based on quoted market prices or observable market inputs of substantially identical assets. Unrealized holding gains and losses are included

in accumulated other comprehensive income (loss). Investments that have maturities beyond one year as of the end of the reporting period are classified as non-current.

The Company's investments are subject to a periodic impairment review. The Company recognizes an impairment charge when a decline in the fair value of its investments below the cost basis is judged to be other-than-temporary. The Company considers various factors in determining whether to recognize an impairment charge, including the length of time and extent to which the fair value has been less than the Company's cost basis, the financial condition and near-term prospects of the investee, and the Company's intent and ability to hold the investment for a period of time sufficient to allow for any anticipated recovery in the market value. Realized gains and losses on available-for-sale securities are included in other income, which is determined using the specific identification method

The table below summarizes the Company's investments (in thousands):

	Amortized Cost	Gross Unrealized Gains	Gross Unrealized (Losses)	Estimated Fair Value
September 30, 2017				
Cash equivalents:				
Money market funds	$ 14,710	$ —	$ —	$ 14,710
Total	14,710	—	—	14,710
Available-for-sale securities:				
Commercial paper securities	106,759	2	(34)	106,727
Corporate debt securities	80,177	—	(51)	80,126
U.S. government-sponsored entity debt securities	36,300	—	(18)	36,282
Total	223,236	2	(103)	223,135
Total cash equivalents and available-for-sale securities	$ 237,946	2	$ (103)	$ 237,845
December 31, 2016				
Cash equivalents:				
Money market funds	$ 18,992	$ —	$ —	$ 18,992
Total	18,992	—	—	18,992
Available-for-sale securities:				
Commercial paper securities	23,112	73	—	23,185
Corporate debt securities	10,005	—	(1)	10,004
U.S. government-sponsored entity debt securities	87,307	3	(25)	87,285
Total	120,424	76	(26)	120,474
Total cash equivalents and available-for-sale securities	$ 139,416	$ 76	$ (26)	$ 139,466

The Company had no material realized losses or other-than-temporary impairments of its investments for the nine months ended September 30, 2017 or the twelve months ended December 31, 2016. As of September 30, 2017 and December 31, 2016, all of the Company's investments had maturity dates within one year, except for $16.3 million as of September 30, 2017 which mature within 24 months. The Company has the intent and ability to hold its investments for a period of time sufficient to allow for any anticipated recovery in market value.

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 and potential dilutive securities outstanding during the period.

Because Sangamo is in a net loss position, diluted net loss per share excludes the effects of common stock equivalents consisting of stock options and restricted stock units, which are all anti-dilutive. The total number of shares subject to stock options and restricted stock units outstanding were excluded from consideration in the calculation of diluted net loss per share. Stock options and restricted stock units outstanding as of September 30, 2017 and 2016 were 9,581,024 and 9,559,727, respectively.

NOTE 5—MAJOR CUSTOMERS, PARTNERSHIPS AND STRATEGIC ALLIANCES

Collaboration Agreements

Collaboration and License Agreement with Pfizer Inc. in Human Therapeutics

On May 10, 2017, Sangamo entered into an Exclusive, Global Collaboration and License Agreement (the "Pfizer Agreement") with Pfizer pursuant to which Sangamo and Pfizer established a collaboration for the research, development and commercialization of SB-525, Sangamo's gene therapy product candidate for hemophilia A, and closely related products.

Under the Pfizer Agreement, Sangamo will be responsible for conducting the Phase 1/2 clinical trial and certain manufacturing activities for SB-525, while Pfizer will be responsible for subsequent worldwide development, manufacturing, marketing and commercialization of SB-525. Sangamo and Pfizer may also collaborate in the research and development of additional adeno-associated virus ("AAV")-based gene therapy products for hemophilia A.

Under the Pfizer Agreement, Sangamo received an upfront fee of $70.0 million from Pfizer. In addition, Sangamo is eligible to receive $208.5 million in payments upon the achievement of specified clinical development, intellectual property, regulatory and $266.5 million in payment upon first commercial sale milestones for SB-525 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 specified milestones in the Pfizer Agreement, is $475.0 million, which includes up to $300.0 million for SB-525 and up to $175.0 million for other products that may be developed under the Pfizer Agreement, subject to reduction on account of payments made under certain licenses for third party intellectual property. In addition, Pfizer has agreed to pay Sangamo royalties for each potential licensed product developed under the Pfizer Agreement that are an escalating tiered, double-digit percentage of the annual 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, no milestone payments have been received and no products have been approved and therefore no royalty fees have been earned under the Pfizer Agreement.

Subject to the terms of the Pfizer Agreement, Sangamo granted Pfizer an exclusive, worldwide, royalty-bearing license, with the right to grant sublicenses, to use certain technology controlled by Sangamo for the purpose of developing, manufacturing and commercializing SB-525 and related products. Under the Pfizer Agreement, Pfizer granted Sangamo a non-exclusive, worldwide, royalty free, fully paid license, with the right to grant sublicenses, to use certain manufacturing technology developed under the Pfizer Agreement and controlled by Pfizer to manufacture Sangamo's products that utilize the AAV delivery system. During a specified period, neither Sangamo nor Pfizer will be permitted to clinically develop or commercialize, outside of the collaboration, certain AAV-based gene therapy products for hemophilia A.

The Company has identified the deliverables within the Pfizer Agreement as a license to the technology and on-going services. The Company concluded that the license is not a separate unit of accounting as it does not have stand-alone value to Pfizer apart from the services to be performed by the Company pursuant to the Pfizer Agreement. As a result, the Company will recognize revenue from the upfront payment on a straight-line basis over a thirty-two month estimated time over which the Company will perform services under the Pfizer agreement. The recognition period will be reviewed quarterly and adjusted, as needed, to reflect the Company's current assumptions regarding the period of performance. As of September 30, 2017, the Company had deferred revenue of $59.6 million related to the Pfizer Agreement. During the three and nine months ended September 30, 2017 the Company recognized revenue of $6.6 million and $10.4 million, respectively, related to the upfront fee that was received upon entering into the Pfizer agreement.

Collaboration and License Agreement with Bioverativ Inc. in Human Therapeutics

In January 2014, the Company entered into a Global Research, Development and Commercialization Collaboration and License Agreement with Biogen (the "Bioverativ Agreement"), and in January 2017 this agreement was assigned by Biogen to its blood disorder spin-off, Bioverativ. Pursuant to the Bioverativ Agreement, Sangamo and Bioverativ collaborate to discover, develop, seek regulatory approval for and commercialize therapeutics based on Sangamo's zinc finger DNA-binding protein ("ZFP") technology for hemoglobinopathies, including beta-thalassemia and sickle cell disease ("SCD").

Under the Bioverativ Agreement, Sangamo and Bioverativ jointly conduct two research programs: the beta-thalassemia program and the SCD program. For the beta-thalassemia program, Sangamo is responsible for all discovery, research and development activities through the first human clinical trial for the first therapeutic developed under the Bioverativ Agreement for the treatment of beta-thalassemia. For the SCD program, both parties are responsible for research and development activities through the submission of an Investigational New Drug ("IND") application for a ZFP-based therapeutic intended to treat SCD. For both programs, Bioverativ is responsible for subsequent world-wide clinical development, manufacturing and commercialization of licensed products developed under the Bioverativ Agreement. At the end of specified research terms for each program or under certain specified circumstances, Bioverativ retains the right to step in and take over any remaining activities of Sangamo. Furthermore, Sangamo has an option to co-

promote in the United States any licensed products to treat beta-thalassemia and SCD developed under the Bioverativ Agreement, and Bioverativ agrees to compensate Sangamo for such co-promotion activities.

Sangamo received an upfront license fee of $20.0 million upon entering into the Bioverativ Agreement. In addition, the Company will also be eligible to receive $115.8 million in payments upon the achievement of specified research, regulatory, clinical development milestones, as well as $160.5 million in payments upon the achievement of specified commercialization and sales milestones. Bioverativ reimburses Sangamo for agreed upon costs incurred in connection with research and development activities conducted by Sangamo, including Phase 1 contingent payments of $7.5 million for the SCD program and $6.0 million for the beta-thalassemia program. In addition, if products are commercialized under the Bioverativ Agreement, Bioverativ will pay Sangamo incremental royalties for each licensed product that are a tiered double-digit percentage of annual net sales of such product. To date, no milestone payments have been received and no products have been approved and therefore no royalty fees have been earned under the Bioverativ Agreement.

In January 2016, the parties agreed on an updated beta-thalassemia development plan and budget using the BCL11A Enhancer target. In November 2016, Sangamo and Bioverativ agreed on an updated beta-thalassemia development plan and budget. As a result of this change, the Company updated the estimated performance period of the upfront license through June 2020, and updated the milestones to be received based on the updated performance period of its deliverables under the Bioverativ Agreement.

All contingent payments under the Bioverativ Agreement, when earned, will be non-refundable and non-creditable. The Company has evaluated the contingent payments under the Bioverativ Agreement based on the authoritative guidance for research and development milestones and determined that certain of these payments meet the definition of a milestone and that all such milestones are evaluated to determine if they are considered substantive milestones. Milestones are considered substantive if they are related to events (i) that can be achieved based in whole or in part on either the Company's performance or on the occurrence of a specific outcome resulting from the Company's performance, (ii) for which there was substantive uncertainty at the date the agreement was entered into that the event would be achieved and (iii) that would result in additional payments being due to the Company. Accordingly, consideration received for the achievement of milestones that are determined to be substantive will be recognized as revenue in their entirety in the period when the milestones are achieved and collectability is reasonably assured. Revenue for the achievement of milestones that are not substantive will be recognized over the remaining period of the Bioverativ Agreement, assuming all other applicable revenue recognition criteria have been met.

Subject to the terms of the Bioverativ Agreement, Sangamo has granted Bioverativ an exclusive, royalty-bearing license, with the right to grant sublicenses, to use certain ZFP and other technology controlled by Sangamo for the purpose of researching, developing, manufacturing and commercializing licensed products developed under the Bioverativ Agreement. Sangamo has also granted Bioverativ a non-exclusive, world-wide, royalty free, fully paid license, with the right to grant sublicenses, under Sangamo's interest in certain other intellectual property developed pursuant to the Bioverativ Agreement.

The Company has identified the deliverables within the arrangement as a license to the technology and on-going research services activities. The Company concluded that the license is not a separate unit of accounting as it does not have stand-alone value to Bioverativ apart from the research services to be performed pursuant to the Bioverativ Agreement. As a result, the Company will recognize revenue from the upfront payment on a straight-line basis over a forty-four month estimated research term as of the November 2016 modification date, during which time the Company will perform research services. The estimated period of performance is reviewed quarterly and adjusted, as needed, to reflect the Company's current assumptions regarding the timing of its deliverables. As of September 30, 2017, the Company had deferred revenue of $5.0 million related to the Bioverativ Agreement.

Revenues recognized under the agreement with Bioverativ for the three months and nine months ended September 30, 2017 and 2016 were as follows (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2017	2016	2017	2016
Revenue related to Bioverativ Collaboration:				
Recognition of upfront fee	$ 442	$ 607	$ 1,326	$ 1,823
Research services	2,959	1,238	7,736	5,163
Total	$ 3,401	$ 1,845	$ 9,062	$ 6,986

Costs and expenses incurred under the Bioverativ Agreement related to the beta-thalassemia project were $2.8 million and $1.2 million during the three months ended September 30, 2017 and 2016, respectively, and $7.3 million and $5.3 million during the nine months ended September 30, 2017 and, 2016, respectively.

Amended Collaboration and License Agreement with Shire International GmbH in Human Therapeutics

In January 2012, the Company entered into a Collaboration and License Agreement with Shire (the "Shire Agreement "), pursuant to which the Company and Shire collaborate to research, develop and commercialize human therapeutics and diagnostics for monogenic diseases based on the Company's novel ZFP technology. This agreement was amended on September 1, 2015, as described in more detail below.

Under the original Shire Agreement, the Company and Shire agreed to develop potential genome editing products or diagnostic products for up to seven gene targets. The initial four gene targets selected were blood clotting Factors VII, VIII, IX and X, and products developed for such initial gene targets may be used for treating or diagnosing hemophilia A and B. Shire had the right, subject to certain limitations, to designate two additional gene targets, and in June 2012, Shire selected a fifth gene target for the development of a therapeutic for Huntington's disease. Pursuant to the Shire Agreement, the Company granted Shire an exclusive, world-wide, royalty-bearing license, with the right to grant sublicenses, to use Sangamo's ZFP technology for the purpose of developing and commercializing human therapeutic and diagnostic products for the gene targets.

Under the terms of the Shire Agreement, the Company was responsible for all research activities through the submission of an IND or European Clinical Trial Application ("CTA"), while Shire was responsible for clinical development and commercialization of products generated from the research program from and after the acceptance of an IND or CTA for the product. Shire reimbursed Sangamo for agreed upon internal and external program-related research costs. The Company received an upfront license fee of $13.0 million upon entering into the Shire Agreement in 2012. In 2014 Sangamo recognized a $1.0 million milestone payment related to the hemophilia program.

On September 1, 2015, the Shire Agreement was amended such that Shire agreed to return to Sangamo the exclusive, world-wide rights to gene targets for the development and commercialization of therapeutics for hemophilia A and B. Shire retained the rights and will continue to develop a therapeutic for Huntington's disease. Sangamo will provide certain target feasibility services, and upon Shire's request, certain research activities according to a research plan as agreed upon by both companies. Such research activities performed by Sangamo will be reimbursed by Shire. Shire's rights with respect to other targets contemplated in the original agreement revert to Sangamo. Under the amended agreement, each company is responsible for expenses associated with its own programs and Shire will reimburse Sangamo for any ongoing services provided by Sangamo for Shire's programs. Sangamo has granted Shire a right of first negotiation to license Sangamo's hemophilia A and B products for genome editing purposes developed under the amended Shire Agreement based on Sangamo's ZFP technology. Under the amended agreement, Shire does not have any milestone payment obligations with respect to the retained programs, but it is required to pay single digit percentage royalties to Sangamo, up to a specified maximum cap, on the commercial sales of therapeutic products from such programs. Under the Shire Agreement as amended, Sangamo has full control over, and full responsibility for the costs of, the hemophilia programs returned to it, subject to certain diligence obligations and Shire's right of first negotiation to obtain a license to such programs under certain circumstances. The Company is required to pay single digit percentage royalties to Shire, up to a specified maximum cap, on commercial sales of therapeutic products from such returned programs.

The Company has identified the deliverables within the amended arrangement as a license to the technology and on-going research services activities. The Company has concluded that the license is not a separate unit of accounting as it does not have stand-alone value to Shire apart from the research services to be performed pursuant to the Shire amendment. As of September 30, 2017, the Company had recognized the remaining deferred revenue of $1.2 million related to the Shire amendment as the research services were completed.

Revenues recognized under the agreement with Shire for the three and nine months ended September 30, 2017 and 2016 were as follows (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2017	2016	2017	2016
Revenue related to Shire Collaboration:				
Recognition of upfront fee	$ 1,166	$ 542	$ 2,333	$ 1,625
Research services	6	165	116	957
Total	$ 1,172	$ 707	$ 2,449	$ 2,582

Related costs and expenses incurred under the Shire agreement were $0.0 million and $0.2 million during the three months ended September 30, 2017 and 2016, and $0.0 million and $0.9 million during the nine months ended September 30, 2017 and 2016, respectively.

Agreement with Sigma-Aldrich Corporation in Laboratory Research Reagents, Transgenic Animal and Commercial Protein Production Cell-line Engineering

In July 2007, the Company entered into a license agreement (the "Sigma Agreement") with Sigma. Under the Sigma Agreement, Sangamo agreed to provide Sigma with access to Sangamo's proprietary ZFP technology and the exclusive right to use the technology to develop and commercialize research reagent products and services in the research field, excluding certain agricultural research uses that Sangamo previously licensed to DAS. Under the Sigma Agreement, Sangamo and Sigma agreed to conduct a three-year research program to develop laboratory research reagents using Sangamo's ZFP technology during which time Sangamo agreed to assist Sigma in connection with its efforts to market and sell services employing the Company's ZFP technology in the research field. Sangamo has transferred its ZFP manufacturing technology to Sigma.

In October 2009, the Company expanded the Sigma Agreement. In addition to the original terms of the Sigma Agreement, Sigma received exclusive rights to develop and distribute ZFP-modified cell lines for commercial production of protein and other pharmaceuticals and certain ZFP-engineered transgenic animals for commercial applications. Under the terms of the expanded agreement, Sigma made an upfront cash payment of $20.0 million consisting of a $4.9 million purchase of 636,133 shares of Sangamo common stock, valued at $4.9 million, and a $15.1 million upfront license fee. Sangamo has received commercial license fees of $5.0 million based upon a percentage of net sales and sublicensing revenue for commercial products and once such amount was received, the Company receives a reduced royalty rate of 10.5% of net sales and sublicensing revenue. In addition, upon the achievement of certain cumulative commercial milestones Sigma will make milestone payments to Sangamo up to an aggregate of $25.0 million.

Revenues recognized under the agreement with Sigma for the three and nine months ended September 30, 2017 and 2016 were as follows (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2017	2016	2017	2016
Revenue related to Sigma Collaboration:				
Royalty revenues	$ 18	$ 42	$ 68	$ 103
License fee revenues	—	7	267	77
Total	$ 18	$ 49	$ 335	$ 180

Related costs and expenses incurred under the Sigma agreement were $0.0 million during both the three and nine months ended September 30, 2017 and 2016, respectively.

Agreement with Dow AgroSciences in Plant Agriculture

In October 2005, the Company entered into an exclusive commercial license agreement with DAS. Under this agreement, Sangamo provides DAS with access to proprietary ZFP technology and the exclusive right to use the technology to modify the genomes or alter the nucleic acid or protein expression of plant cells, plants, or plant cell cultures. Sangamo has retained rights to use plants or plant-derived products to deliver ZFP transcription factors ("ZFP TFs") or ZFP nucleases ("ZFNs") into humans or animals for diagnostic, therapeutic or prophylactic purposes. The Company's agreement with DAS provided for an initial three-year research term. In June 2008, DAS exercised its option under the agreement to obtain a commercial license to sell products incorporating or derived from plant cells generated using the Company's ZFP technology, including agricultural crops, industrial products and plant-derived biopharmaceuticals. The exercise of the option triggered a one-time commercial license fee of $6.0 million, payment of the remaining $2.3 million of the previously agreed $4.0 million in research milestones, development and commercialization milestone payments for each product, and royalties on sales of products. Furthermore, DAS has the right to sublicense Sangamo's ZFP technology to third parties for use in plant cells, plants or plant cell cultures and Sangamo will be entitled to 25% of any cash consideration received by DAS under such sublicenses. In December 2010, the Company amended its agreement with DAS to extend the period of reagent manufacturing services and research services through December 31, 2012.

The agreement with DAS also provides for minimum sublicense fees each year due to Sangamo every October, provided the Agreement is not terminated by DAS. Annual fees range from $250,000 to $3.0 million and total $25.3 million over eleven years. The Company does not have any ongoing performance obligations with respect to the sublicensing activities to be conducted by DAS. DAS has the right to terminate the agreement at any time; accordingly, the Company's actual sublicense fees over the term of the agreement could be lower than $25.3 million. In addition, each party may terminate the agreement upon an uncured material breach by the other party. In the event of any termination of the agreement, all rights to use the Company's ZFP technology will revert to Sangamo, and DAS will no longer be permitted to practice Sangamo's ZFP technology or to develop or, except in limited circumstances, commercialize any products derived from the Company's ZFP technology.

Revenues recognized under the agreement with DAS were $0.4 million during three and nine months ended September 30, 2017. There were no revenues recognized for the three and nine months ended September 30, 2016. There were no costs and expenses incurred under the agreement with DAS during the three and nine months ended September 30, 2017 and 2016, respectively.

Funding from Research Foundations

California Institute for Regenerative Medicine ("CIRM") - HIV

In May 2014, CIRM agreed to fund a $5.6 million Strategic Partnership Award to fund the clinical studies of a potentially curative therapeutic for HIV/AIDS based on the application of Sangamo's ZFN genome editing technology in hematopoietic stem and progenitor cells ("HSPCs"). The four-year grant provides matching funds to support evaluation of the Company's stem cell-based therapeutic in a clinical trial in HIV-infected individuals conducted at City of Hope.

There were no revenues attributable to research and development performed under this Strategic Partnership Award during the three and nine months ended either September 30, 2017 or 2016. Related costs and expenses incurred under the CIRM Strategic Partnership Award were $0.5 million and $0.6 million during the three months ended September 30, 2017 and 2016, respectively, and $0.8 million and $1.2 million during the nine months ended September 30, 2017 and 2016, respectively.

NOTE 6—INCOME TAXES

The Company maintains deferred tax assets that reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. These deferred tax assets include net operating loss carryforwards, research credits and capitalized research and development costs. Realization of deferred tax assets is dependent upon future earnings, if any, the timing and amount of which are uncertain based on Sangamo's history of losses. Accordingly, the Company's net deferred tax assets have been fully offset by a valuation allowance. Utilization of operating losses and credits may be subject to substantial annual limitation due to ownership change provisions of the Internal Revenue Code of 1986, as amended and similar state provisions. The annual limitation may result in the expiration of net operating losses and credits before utilization.

NOTE 7—STOCK-BASED COMPENSATION

The following table shows total stock-based compensation expense included in the condensed consolidated statements of operations for the three and nine months ended September 30, 2017 and 2016 (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2017	2016	2017	2016
Research and development	$ 1,331	$ 1,790	$ 3,766	$ 5,368
General and administrative	888	945	3,203	7,760
Total stock-based compensation expense	$ 2,219	$ 2,735	$ 6,969	$ 13,128

Included in the above stock-based compensation table for the nine months ended September 30, 2017 is $0.8 million related to a modification of options for the Company's former chief financial officer who retired during the three months ended March 31, 2017. For the nine months ended September 30, 2016 the Company recognized $4.1 million in stock-based compensation expense associated with separation costs for the transition of the Company's former chief executive officer in June 2016.

NOTE 8—BUILD-TO-SUIT LEASE

In December 2015, the Company entered into a long-term property lease which includes construction by the lessor of a building with approximately 41,400 square feet of space, in Richmond, California. Substantial completion of the building was accomplished in December 2016, at which time the lease commenced. The lease agreement expires in December 2021, five years after substantial completion of the building. The Company has two options to extend the lease term for up to a combined additional ten years.

The Company is deemed, for accounting purposes only, to be the owner of the entire project including the building shell, even though it is not the legal owner. In connection with the Company's accounting for this transaction, the Company capitalized the costs of construction as a build-to-suit property within property and equipment, net, and recognize a corresponding build-to-suit lease obligation for the same amount. As of September 30, 2017, $3.8 million of costs were capitalized in buildings with a corresponding build-to-suit lease obligation recognized related to this lease.

Construction has completed on the facility and as such a portion of the monthly lease payment is allocated to land rent and recorded as an operating lease expense and the non-interest portion of the amortized lease payments to the landlord related to the rent of the building is applied to reduce the build-to-suit lease obligation.

NOTE 9— STOCKHOLDERS' EQUITY

On May 26, 2017, the Company entered into an Amended and Restated At-the-Market Offering Program Sales Agreement (the "2017 ATM Agreement") with an investment bank pursuant to which the Company may issue and sell from time to time after the date of the 2017 ATM Agreement, shares of its common stock having an aggregate offering price of up to $75.0 million through the investment bank acting as the Company's sales agent. Under the 2017 ATM Agreement, if the Company decides to sell shares, the Company will notify the sales agent, and the sales agent will use its commercially reasonable efforts to sell on the Company's behalf all of the shares of common stock requested to be sold. Sales of the Company's common stock, if any, will be made at market prices by any method that is deemed to be an "at the market offering" as defined in Rule 415 under the Securities Act, as amended, including sales made directly on The NASDAQ Global Select Market and sales to or through a market maker other than on an exchange. In addition, with the Company's prior written consent, the sales agent may also sell shares of its common stock in negotiated transactions under the 2017 ATM Agreement. During the three months ended March 31, 2017, the Company issued a total of 871,149 shares of its common stock under the original At-the-Market Offering Program Sales Agreement entered into with the sales agent in December 2016, and received net proceeds of $3.4 million, after deducting offering expenses, including $0.1 million of commission paid to the sales agent. These shares were inadvertently sold under a registration statement filed with the SEC that had in fact expired prior to the time the shares were sold. Consequently, the Company may be subject to claims for rescission by purchasers who purchased shares of common stock under the ATM Agreement in March 2017. Under Section 12(a)(1) of the Securities Act, a purchaser of security in a transaction made in violation of Section 5 of the Securities Act may obtain recovery of the consideration paid in connection with its purchase, plus statutory interest, or, if it had already sold the shares, recover damages resulting from its purchase. While the Company believes it is unlikely that a successful claim will be asserted against the Company by any purchasers who purchased shares of common stock under the ATM Agreement in March 2017, the Company cannot guarantee that no such legal claims will be asserted against the Company by any purchasers. In addition, the Company could become subject to enforcement actions and/or penalties and fines by federal authorities, and the Company is unable to predict the likelihood of any such enforcement actions being brought, or the amount of any such potential penalties or fines.

On June 26, 2017, Sangamo completed an underwritten public offering of its common stock, in which the Company sold an aggregate of 11.5 million shares of its common stock at a public offering price of $7.25 per share. The net proceeds to Sangamo from the sale of shares in this offering, after deducting underwriting discounts and commissions and other estimated offering expenses, were approximately $78.1 million.

NOTE 10— SUBSEQUENT EVENT

On November 3, 2017, Sangamo Therapeutics, Inc. (the "Company") entered into a Lease Agreement (the "Lease") with Marina Boulevard Property, LLC ("Landlord") for the lease of approximately 87,695 square feet of rentable area of the building located at 7000 Marina Boulevard, Brisbane, California (the "Premises"). The Company expects to occupy the Premises upon completion of tenant improvements, which the Company expects will occur by the end of 2018. The Company plans to use the Premises as its new principal executive offices and for general office, research and development, lab and manufacturing uses. After the relocation, the Company plans to continue to utilize its currently-leased space located in Richmond, California as a research center.

Unless earlier terminated, the term of the Lease (the "Initial Term") will commence on June 1, 2018 (the "Commencement Date") and will expire the day before the eleventh anniversary of the Commencement Date. The aggregate base rent due over the Initial Term under the terms of the Lease is approximately $38 million (without giving effect to certain rent abatement terms). The Company will also be responsible for the payment of additional rent to cover certain costs, taxes and insurance. Based on the estimated monthly additional rent for 2017 as set forth in the Lease, the Company estimates that the additional rent during the Initial Term will be approximately $10 million. The Company also expects to pay approximately $15 million for leasehold improvements, net of the tenant improvement allowance.

The Company has two renewal options to extend the term of the Lease for a period of five years each (each, a "Renewal Term") beyond the Initial Term. Under the terms of the Lease, the base rent payable with respect to each Renewal Term will be equal to 90% of the prevailing market rental rent as of the commencement of the applicable Renewal Term. In the event of a default of certain of the Company's obligations under the Lease, Landlord would have right to terminate the Lease. At this time the Company is assessing the accounting impact of the lease.

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 of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. These forward-looking statements include, without limitation, statements containing the words "believes," "anticipates," "expects," "continue," 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 , including but not limited to those described under the caption "Risk Factors" herein and in our Annual Report on Form 10-K for the year ended December 31, 2016, or 2016 Annual Report, as filed with the Securities and Exchange Commission, or SEC. You should read the following discussion and analysis along with the financial statements and notes attached to those statements included elsewhere in this report and in our 2016 Annual Report.

Overview

We are a clinical stage biotechnology company focused on translating ground-breaking science into genomic therapies that transform patients' lives using our industry-leading platform technologies in genome editing, gene therapy, gene regulation and cell therapy. Our proprietary zinc finger DNA-binding proteins, or ZFP technology enables efficient and highly specific genome editing and gene regulation, and we are developing genome editing and gene therapies for the treatment of diverse diseases with well-characterized genetic causes. We have several proprietary clinical and preclinical programs in development and have strategically partnered certain programs with biopharmaceutical companies to obtain funding for our own programs and to expedite clinical and commercial development. Our long-term goal is to forward integrate into manufacturing, development and commercial operations to more fully capture the value of our proprietary genome editing and gene therapy products.

We, and our licensed partners, are the leaders in the research, development and commercialization of ZFPs, a naturally occurring class of proteins found in humans. We have used our knowledge and expertise to develop a proprietary technology platform in both genome editing and gene regulation. ZFPs can be engineered to make zinc finger nucleases, or ZFNs, proteins that can be used to specifically modify DNA sequences by adding or knocking out specific genes (genome editing), and ZFP transcription factors or ZFP TFs, proteins that can be used to increase or decrease gene function (gene regulation). Although we are focused on the development of human therapeutic applications, ZFPs act at the DNA level and potentially have broad and fundamental applications in several other areas, such as plant agriculture and research reagents, including the production of transgenic animals and cell-line engineering. In the process of developing this platform we have accrued significant scientific, manufacturing and regulatory capabilities and know-how that is generally applicable in the broader field of gene therapy.

The main focus for our company is the development of human therapeutics. We have initiated Phase 1/2 clinical trials evaluating our proprietary ZFN *in vivo* genome editing approach for the treatment of hemophilia B, a blood disorder, Mucopolysaccharidosis I, or MPS I, and Mucopolysaccharidosis II, or MPS II, rare lysosomal storage disorders, or LSDs. We have also initiated a Phase 1/2 clinical trial evaluating a gene therapy for the treatment of hemophilia A, a blood disorder. In addition, we have proprietary preclinical programs in other LSDs and research stage programs in other monogenic diseases, including certain central nervous system disorders and cancer immunotherapy.

We have established a collaborative partnership with Bioverativ, Inc., or Bioverativ, the blood disorder spin-off of Biogen Inc., formerly Biogen Idec MA Inc., to research, develop and commercialize therapeutic gene-edited cell therapy products in hemoglobinopathies, including sickle cell disease, or SCD and beta-thalassemia. The U.S. Food and Drug Administration, or FDA, has approved the Investigational New Drug Application, or IND, relating to a gene-edited cell therapy candidate for the treatment of beta-thalassemia, enabling us to initiate a clinical trial evaluating such product candidate for the treatment of beta-thalassemia. We expect to begin enrolling patients in that study in the first half of 2018. We also have a collaborative partnership with Shire International GmbH, formerly Shire AG, or Shire, to research, develop and commercialize a preclinical development program related to Huntington's disease.

On May 10, 2017, we entered into an Exclusive, Global Collaboration and License Agreement, or the Pfizer Agreement, with Pfizer Inc., or Pfizer, pursuant to which we and Pfizer established a collaboration for the research, development and commercialization of SB-525, our gene therapy product candidate for hemophilia A, and closely related products. Under the Pfizer Agreement, we will be responsible for conducting the Phase 1/2 clinical trial and certain manufacturing activities for SB-525, while Pfizer will be responsible for subsequent worldwide development, manufacturing, marketing and commercialization of SB-525. We and Pfizer may also collaborate in the research and development of additional adeno-associated virus or AAV-based gene therapy products for hemophilia A. See "Liquidity and Capital Resources" below.

Additionally, we have a legacy clinical development program evaluating SB-728-T, a ZFN-modified autologous T-cell product and SB-728-HSPC, a ZFN-modified autologous hematopoietic stem cell product for the treatment of HIV/AIDS. We have determined that HIV/AIDS is not a primary strategic focus for our Company, and we intend to seek collaborative partnerships before investing further in the development of human therapeutics for these indications.

In fields outside human therapeutics, we have entered into strategic partnerships to facilitate the sale or licensing of our ZFP platform. We have a license agreement with Sigma-Aldrich Corporation, which was acquired by Merck KGaA and renamed MilliporeSigma, or Sigma. Under this agreement, Sigma has the exclusive rights to develop and market ZFP-based laboratory research reagents marketed under the trademark CompoZr ® as well as ZFP-modified cell lines for commercial production of protein pharmaceuticals and ZFP-engineered transgenic animals. We also have a license agreement with Dow AgroSciences, LLC or DAS, a wholly owned subsidiary of Dow Chemical Corporation. Under this agreement, DAS has the exclusive rights to use our ZFP technology to modify the genomes or alter protein expression of plant cells, plants, or plant cell cultures and markets our ZFN technology under the trademark EXZACT™ Precision Technology.

We have a substantial intellectual property position in the genome editing field including the design, selection, composition and use of engineered ZFPs to support our commercial activities. As of July 26, 2017, we either owned outright or have exclusively licensed the commercial rights to approximately 812 patents issued in the United States and foreign national jurisdictions, and 617 patent applications pending worldwide. We continue to license and file new patent applications that strengthen our core and accessory patent portfolio. We believe that our intellectual property position is a critical element in our ability to research, develop and commercialize products and services based on genome editing, gene therapy, gene regulation and cell therapy across our chosen applications.

In the development of our ZFP technology platform, we are focusing our resources on higher-value product development for therapeutic use in humans. Development of novel therapeutic products is costly and subject to a lengthy and uncertain regulatory process at the FDA. Our future products will be gene-based therapeutics. Adverse events in both our own clinical program and other programs may have a negative impact on regulatory approval, the willingness of potential commercial partners to enter into agreements and public perception for our therapeutic programs.

On January 5, 2017, we changed our corporate name from “Sangamo BioSciences, Inc.” to “Sangamo Therapeutics, Inc.” The new corporate name underscores our focus on clinical development of genomic therapies using our industry-leading platform technologies across genome editing, gene therapy, gene regulation and cell therapy.

Critical Accounting Estimates

The accompanying discussion and analysis of our financial condition and results of operations are based upon our condensed consolidated financial statements and the related disclosures, which have been prepared in accordance with generally accepted accounting principles in the United States. The preparation of these financial statements requires us to make estimates, assumptions and judgments that affect the reported amounts in our 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. There have been no significant changes in our critical accounting policies and estimates disclosed in our 2016 Annual Report.

Results of Operations

Three and nine months ended September 30, 2017 and 2016

Revenues

	Three Months Ended September 30, (in thousands, except percentage values)				Nine Months Ended September 30, (in thousands, except percentage values)			
	2017	2016	Change	%	2017	2016	Change	%
Revenues:								
Collaboration agreements	$ 11,759	$ 2,728	$ 9,031	331%	$ 23,042	$ 10,031	$ 13,011	130%
Research Grants	53	95	(42)	-44%	448	436	12	3%
Total revenues	$ 11,812	$ 2,823	$ 8,989	318%	$ 23,490	$ 10,467	$ 13,023	124%

Total revenues consist of revenues from collaboration agreements and research grants. We anticipate revenues over the next several years will be derived primarily from our collaboration agreements with Pfizer, Bioverativ, DAS and Sigma.

Revenues from our corporate collaboration agreements were $11.8 million for the three months ended September 30, 2017, compared to $2.7 million in the corresponding period in 2016. The $9.1 million increase in collaboration agreements revenues was primarily due to an increase of $6.6 million in revenues related to the Pfizer Agreement, $1.6 million increase in revenues related to our agreement with Bioverativ, and $0.5 million in revenue related to Shire revenue. The revenues from Pfizer included $6.6 million from the partial recognition of an upfront fee of $70.0 million. Bioverativ included $3.0 million from research services and $0.4 million related to partial recognition of an upfront license fee of $20.0 million. The revenues from Shire included $1.2 million related to the final recognition of the upfront license fee of $13.0 million. Research grant revenues were approximately $0.1 million for the three months ended September 30, 2017 and 2016, respectively.

Revenues from our corporate collaboration agreements were $23.0 million for the nine months ended September 30, 2017, compared to $10.0 million in the corresponding period in 2016. The increase of $13.0 million in collaboration agreement revenues was primarily attributable to a $10.4 million increase in revenues related to the Pfizer Agreement, $2.1 million increase in revenues related to our agreement with Bioverativ, and $0.2 million increase in revenues related to our agreement with Sigma, partially offset by $0.1 million in revenue from our agreement with Shire. Research grant revenues were $0.4 million for the nine months ended September 30, 2017 and 2016, respectively.

Operating Expenses

	Three Months Ended September 30, (in thousands, except percentage values)				Nine Months Ended September 30, (in thousands, except percentage values)			
	2017	2016	Change	%	2017	2016	Change	%
Operating expenses:								
Research and development	$ 18,425	$ 17,008	$ 1,417	8%	$ 46,351	$ 51,728	$ (5,377)	-10%
General and administrative	6,422	5,021	1,401	28%	19,734	21,468	(1,734)	-8%
Total expenses	$ 24,847	$ 22,029	$ 2,818	13%	$ 66,085	$ 73,196	$ (7,111)	-10%

Research and Development

Research and development expenses consist primarily of salaries and personnel-related expenses, including stock-based compensation, laboratory supplies, preclinical and clinical studies, manufacturing expenses, allocated facilities expenses, subcontracted research expenses and expenses for technology licenses. In 2015, we established a Technical Operations group to manage the relationships with third-party vendors used in our manufacturing processes as well as to improve our process development and increase our overall manufacturing capabilities. 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 AAV cDNA for treatment of hemophilia A and our *in vivo* genome editing programs in the clinic and if we are able to progress our earlier stage product candidates into clinical trials including our programs under our collaboration with Bioverativ. Pursuant to the terms of the agreement with Bioverativ, certain of our expenses related to research and development activities will be reimbursed, including employee and external research costs. The reimbursement funds received from Bioverativ are recognized as revenue as the costs are incurred and collection is reasonably assured. We also continue to fulfill our obligations under the terms of our non-therapeutic collaboration agreements with Sigma and DAS. In addition, to the extent we continue to receive royalties from Sigma, we will incur fees related to certain technologies that we have in-licensed.

Research and development expenses were $18.4 million for the three months ended September 30, 2017, compared to $17.0 million in the corresponding period in 2016. The increase of $1.4 million in research and development expenses was primarily due to increases of $1.9 million in manufacturing and clinical trial expenses due to timing of manufacturing activities, $1.5 million in salaries and benefits, and $0.3 million in facility expenses, partially offset by a decrease of $1.3 million in research expense and $0.7 million in lab supply expenses as our programs move into the clinic, and $0.5 million in stock-based compensation expense.

Research and development expenses were $46.4 million for the nine months ended September 30, 2017, compared to $51.7 million in the corresponding period in 2016. The decrease of $5.3 million in research and development expenses was primarily due to decreases of $5.0 million in manufacturing expense partially due to the completion of clinical material related to the MPS programs, $3.1 million in research expenses partially as a result of our hemophilia A program moving to the clinic, $2.4 million in lab supply expenses as our programs move into the clinic, and a $1.6 million decrease in stock-based compensation expense. These decreases were partially offset by an increase of $3.4 million in salaries and benefits expense and $3.0 million in clinical trial expense related to our hemophilia B and MPS programs.

General and Administrative

General and administrative expenses consist primarily of salaries and personnel-related expenses, including stock-based compensation, other expenses for executive, finance and administrative personnel, professional fees, allocated facilities expenses, patent prosecution expenses and other general corporate expenses. As we pursue commercial development of our therapeutic programs, we expect our business aspects to become more complex. We may be required to add personnel and incur additional expenses related to the maturity of our business.

General and administrative expenses were $6.4 million for the three months ended September 30, 2017, compared to $5.0 million for the corresponding period in 2016. The increase of $1.4 million in general and administrative expenses was primarily due to increases of $0.7 million in salaries and benefits, $0.3 million in legal expenses, and $0.2 million in facility expense.

General and administrative expenses were $19.7 million for the nine months ended September 30, 2017, compared to $21.5 million for the corresponding period in 2016. The decrease of $1.8 million in general and administrative expenses was primarily due to a decrease of $4.5 million in stock-based compensation expense which includes separation costs associated with the transition of our former chief executive officer in June 2016, partially offset by increases of $1.4 million in legal expenses, $0.6 million in corporate expenses, $0.6 million in facility expenses, and $0.1 million in consulting expense.

Liquidity and Capital Resources

Liquidity

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

As of September 30, 2017, we had cash, cash equivalents, marketable securities and interest receivable totaling $253.5 million compared to $142.8 million as of December 31, 2016, with the increase primarily attributable to our completion of an underwritten public offering of our common stock in June 2017, in which 11.5 million shares of our common stock were sold at a public offering price of $7.25 per share. Net proceeds to the Company, after deducting underwriting discounts and commissions and other estimated offering expenses, were appropriately $78.1 million. Cash, cash equivalents, and marketable security further increased attributable to $70.0 million for the upfront license and service fee received from Pfizer pursuant to the Pfizer Agreement.

Our most significant use of capital pertains to salaries and benefits for our employees 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 obligations of U.S. government agencies, U.S. Treasury debt securities, corporate debt securities and money market funds. Cash in excess of immediate requirements is invested in accordance with our investment policy with a view toward capital preservation and liquidity.

On May 26, 2017, we entered into an Amended and Restated At-the-Market Offering Program Sales Agreement with an investment bank pursuant to which we may issue and sell from time to time shares of our common stock having an aggregate offering price of up to $75.0 million through the investment bank acting as our sales agent, or the 2017 ATM Agreement. Under the 2017 ATM Agreement, if we decides to sell shares, we will notify the sales agent, and the sales agent will use its commercially reasonable efforts to sell on our behalf all of the shares of common stock requested to be sold. Sales of our common stock, if any, will be made at market prices by any method that is deemed to be an “at the market offering” as defined in Rule 415 under the Securities Act, as amended, including sales made directly on The NASDAQ Global Select Market and sales to or through a market maker other than on an exchange. In addition, with our prior written consent, the sales agent may also sell shares of our common stock in negotiated transactions under the 2017 ATM Agreement. During the three months ended March 31, 2017, we issued a total of 871,149 shares of its common stock under the original At-the-Market Offering Program Sales Agreement entered into during December 2016, and received net proceeds of $3.4 million, after deducting offering expenses, including $0.1 million of commission paid to the sales agent. These shares were inadvertently sold under a registration statement filed with the SEC that had in fact expired prior to the time the shares were sold and accordingly, these shares are subject to potential rescission rights, as described in more detail under “Risk Factors” in Part II, Item 1A of this Quarterly Report on Form 10-Q. In addition, if it were determined that we sold unregistered securities, we could be subject to enforcement actions or penalties and fines by regulatory authorities. We have not sold any common stock under the 2017 ATM Agreement and the full $75.0 million provided for under the 2017 ATM Agreement remained available for sale thereunder at September 30, 2017.

On May 10, 2017, we entered into the Pfizer Agreement, pursuant to which we received an upfront payment of $70.0 million from Pfizer. Pfizer will reimburse us for certain costs incurred in connection with the SB-525 Phase 1/2 trial and certain manufacturing activities for SB-525, above a specified amount. In addition, we are eligible to receive development milestone payments contingent on the achievement of specified clinical development, intellectual property, regulatory and first commercial sale milestones for SB-525 and potentially for other products. The total amount of potential clinical development, intellectual property,

regulatory, and first commercial sale milestone payments, assuming the achievement of all specified milestones in the Agreement, is $475.0 million, which includes up to $300.0 million for SB-525 and up to $175.0 million for other products that may be developed under the Pfizer Agreement, subject to reduction on account of payments made under certain licenses for third party intellectual property. In addition, Pfizer has agreed to pay us royalties for each licensed product that are an escalating tiered, double-digit percentage of the annual net sales of such product, and 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.

Cash Flows

Operating activities. Net cash provided by operating activities for the nine months ended September 30, 2017 was $28.0 million. Net cash used in operating activities was $54.1 million for the nine months ended September 30, 2016. Net cash provided by operating activities for the nine months ended September 30, 2017 primarily reflected the increase in deferred revenue for the period as a result of the Pfizer Agreement, as well as stock-based compensation and increased accounts payable and accrued liabilities, which were partially offset by the net loss for the period as well as a decrease in prepaid assets. Net cash used in operating activities for the nine months ended September 30, 2016 primarily reflected the increase in net loss for the period as well as a decrease in accrued liabilities and deferred revenue, partially offset by the increase in stock-based compensation.

Investing activities. Net cash used in investing activities for the nine months ended September 30, 2017 was $105.4 million. Net cash provided by investing activities was $11.9 million for the nine months ended September 30, 2016. Cash flows from investing activities for both periods primarily related to purchases and maturities of investments.

Financing activities. Net cash provided by financing activities for the nine months ended September 30, 2017 and 2016 was $85.2 million and $0.8 million, respectively. Net cash provided by financing activities for the nine month period ended September 30, 2017 was primarily related to the completion of an underwritten public offering of our common stock, net of issuance costs. Net cash provided by financing activities for the nine month period ended September 30, 2016 was primarily related to the issuance of common stock upon exercise of stock options.

Operating Capital and Capital Expenditure Requirements

We anticipate continuing to incur operating losses for at least the next several years. While our rate of cash usage may increase in the future, in particular to support our product development endeavors, we believe our available cash resources as well as funds received from corporate collaborators, strategic partners and research grants will enable us to maintain our currently planned operations through 2018. Future capital requirements will be substantial, and if our capital resources are insufficient to meet future capital requirements, we will need to raise additional capital to fund our operations, including gene therapy development activities, through equity or debt financing. We regularly consider fund raising opportunities and may decide, from time to time, to raise capital based on various factors, including market conditions and our plans of operation. Additional capital may not be available on terms acceptable to us, or at all. If adequate funds are not available, or if the terms of potential funding sources are unfavorable, our business and our ability to develop our technology and our gene therapy products would be harmed. Furthermore, any sales of additional equity securities may result in dilution to our stockholders, and any debt financing may include covenants that restrict our business.

Our future capital requirements will depend on many factors and are not limited to the following:

- the initiation, progress, timing and completion of clinical trials for our product candidates;
- the outcome, timing and cost of regulatory approvals;
- the success of our collaboration agreements with third parties, including Pfizer, Bioverativ, DAS, and Sigma;
- 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; and
- the possible costs of litigation.

Off-Balance Sheet Arrangements

We do not have any off-balance sheet arrangements as defined in Regulation S-K, Item 303(a)(4)(ii).

Contractual Obligations and Commercial Commitments

Our future minimum contractual commitments were reported in our 2016 Annual Report and there have been no material changes outside the ordinary course of business in the previously disclosed contractual commitments during the nine months ended September 30, 2017.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Our primary exposure to market risk is interest income sensitivity relating to our cash, cash equivalents and investments, which is affected by changes in the general level of U.S. interest rates. We do not have any foreign currency or other derivative financial instruments.

Our market risks at September 30, 2017 have not changed materially from those discussed in Item 7A of our 2016 Annual Report.

ITEM 4. CONTROLS AND PROCEDURES

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 Securities and Exchange Commission's rules and forms and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure. In designing and evaluating the disclosure controls and procedures, management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable, and not absolute, assurance of achieving the desired control objectives. In reaching a reasonable level of assurance, management necessarily was required to apply its judgment in evaluating the cost benefit relationship of possible controls and procedures.

As required by the Securities and Exchange Commission Rule 13a-15(b), we carried out an evaluation, under the supervision of and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, of the effectiveness of the design and operation of our disclosure controls and procedures as of the end of the period covered by this report. Based on the foregoing, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective at the reasonable assurance level.

Change in Internal Control over Financial Reporting

There has been no change in our internal control over financial reporting during our most recent fiscal quarter that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

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

An investment in our common stock involves significant risk. You should carefully consider the information described in the following risk factors, together with the other information appearing elsewhere in this report, before making an investment decision regarding our common stock. While the risk factors set forth below update and supplement the risk factors set forth in the 2016 Annual Report, you should review our 2016 Annual Report, including the section under the caption "Item 1A. Risk Factors," together with the other information appearing elsewhere in this report, before making an investment decision regarding our common stock. We have marked with an asterisk (*) those risks described below that reflect substantive changes from the risks described in our 2016 Annual Report. If any of the risks described below or in our 2016 Annual Report actually occur, our business, financial conditions, results of operation and future growth prospects would likely be materially and adversely affected. In these circumstances, the market price of our common stock could decline, and you may lose all or a part of your investment in our common stock. Moreover, the risks described below and in our 2016 Annual Report are not the only ones that we face. Additional risks not presently known to us or that we currently deem immaterial may also affect our business, operating results, prospects or financial condition. You should carefully consider these risk factors, together with all of the other information included in this Quarterly Report as well as our other publicly available filings with the SEC.

Risks Relating to Development, Commercialization and Regulatory Approval of our Products and Technology

Our success depends substantially on the results of clinical trials of our lead therapeutic programs, and we may not be able to demonstrate long-term safety and efficacy of product candidates in these programs.

We have initiated Phase 1/2 clinical trials evaluating product candidates for the treatment of hemophilia A, hemophilia B, MPS I (Hurler syndrome) and MPS II (Hunter syndrome). Our success and prospects depend substantially on the progress of these highly visible lead programs. Our failure to enroll sufficient patients to conduct the trials, demonstrate safety or obtain positive clinical trial results, or our inability to meet the expected timeline of clinical trials or release of data, for these programs would have a material adverse effect on our business operations and financial conditions, which may cause a significant decline in our stock price.

While we have achieved positive results in preclinical studies of these product candidates, they have not been tested in humans, and there is no guarantee that we can duplicate such positive safety and efficacy results in clinical trials. Furthermore, all four programs are novel *in-vivo* gene therapy or genome editing therapies that utilize adeno-associated virus or AAV, approach to deliver therapeutic level of ZFN into the patient's blood stream. The AAV delivery system has not been validated in human clinical trials previously, and if such delivery system does not meet the safety criteria or cannot produce the desirable efficacy results we expect, we may be forced to suspend or terminate all four programs.

Our ability to advance clinical trials successfully and on a timely basis for these programs is subject to a number of additional risks, including but are not limited to the following:

- the ability to identify and recruit sufficient number of acceptable patients to complete enrollment of trials;
- the occurrence of unexpected adverse events or toxicity;
- disagreement with the FDA on the interpretation of our clinical trial results;
- defects in the preparation and manufacturing of our product candidates;
- failure by third parties, including vendors, manufacturers and clinical trial organizations, to provide timely and adequate supplies and services;
- development of similar gene therapies by our competitors;
- unexpected costs and expenses and lack of sufficient funding for these programs; and
- loss of licenses to critical intellectual properties.

Even if we are able to complete phase 1/2 trials for these programs successfully, we will likely be required to conduct additional clinical trials with larger patient populations, before obtaining the necessary regulatory approval to commercialize our products.

However, there is no guarantee that the positive results achieved in earlier trials are indicative of long-term efficacy in late stage clinical trials. A number of companies in the pharmaceutical and biotechnology industries have suffered significant setbacks in late stage clinical trials even after achieving promising results in earlier-stage clinical trials. If a larger population of patients does not experience positive results, or if these results are not reproducible, our products may not receive approval from the FDA, which could have a material adverse effect on our business that would cause our stock price to decline significantly.

Our potential therapeutic products are subject to a lengthy and uncertain regulatory process, and we may encounter unanticipated toxicity or adverse events or fail to demonstrate efficacy, causing us to delay, suspend or terminate a development program which will prevent us from commercializing those products.

The FDA must approve any human therapeutic product before it can be marketed in the United States. The process for receiving regulatory approval is long and uncertain, and a potential product may not withstand the rigors of testing under the regulatory approval processes.

Before commencing clinical trials in humans, we must submit an Investigational New Drug, or IND, application to the FDA. The FDA has 30 days to comment on the application, and if the agency has no comments, we or our commercial partner may begin clinical trials. While we have stated our intention to file additional IND applications in the future, this is only a statement of intent, and we may not be able to do so because the associated product candidates may not meet the necessary preclinical requirements. In addition, there can be no assurance that, once filed, an IND application will result in the actual initiation of clinical trials or that we will be able to meet our targeted timeline for the initiation of clinical trials. Clinical trials are subject to oversight by institutional review boards and the FDA. In addition, our proposed clinical studies may require review from the Recombinant DNA Advisory Committee or RAC, which is the advisory board to the National Institutes of Health, or NIH, focusing on clinical trials involving gene transfer.

Clinical trials:

- must be conducted in conformance with the FDA's good clinical practices, within the guidelines of the International Council for Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use or ICH and other applicable regulations;
- must meet requirements for Institutional Review Board, or IRB, oversight;
- must follow Institutional Biosafety Committee, or IBC, and NIH RAC guidelines where applicable;
- must meet requirements for informed consent;
- are subject to continuing FDA oversight;
- may require oversight by a Data Safety Monitoring Board, or DSMB;
- may require large numbers of test subjects; and
- may be suspended by a commercial partner, the FDA, or us at any time if it is believed that the subjects participating in these trials are being exposed to unacceptable health risks or if the FDA finds deficiencies in the IND application or the conduct of these trials.

If we are not able to obtain the necessary regulatory approval to commercialize our products of if such approval is delayed or suspended, it would have an adverse effect on our business operations and trading price of our common stock.

While we have stated we intend to continue to advance additional early research programs through preclinical development and IND application filings and into clinical development, we may encounter difficulties that may delay, suspend or scale back our efforts.

In the future we intend to advance early research programs through preclinical development and to file new IND applications for human clinical trials evaluating these candidates. The preparation and submission of IND applications requires us to conduct rigorous and time-consuming preclinical testing, studies, and prepare documentation relating to, among other things, the toxicity, safety, manufacturing, chemistry and clinical protocol of our product candidates. We may experience unforeseen difficulties that could delay or otherwise prevent us from executing this strategy successfully. For example, we may encounter problems in the manufacturing of our products and fail to demonstrate consistency in the formulation of the drug. Our preclinical tests may produce negative or inconclusive results, which may lead us to decide, or regulators may require us, to conduct additional preclinical testing. If we cannot obtain positive results in preclinical testing, we may decide to abandon the projects altogether. In addition, our ability to complete and file certain IND applications depends on the support of our partners and the timely performance of their obligations under relevant collaboration agreements. If our partners are not able to perform such obligations or if they choose to slow down or delay the progress, we may not be able to prepare and file the intended IND applications on a timely basis or at all. Furthermore, the filing of several IND applications involves significant cost and labor, and we may not have sufficient resources and personnel to complete the filing of all intended IND applications, which may force us to scale back the number of IND applications or forego potential IND applications that we believe are promising. Any delay, suspension or reduction of our efforts to pursue our preclinical and IND strategy could have a material adverse effect on our business and cause our stock price to decline.

****We may not be able to find acceptable patients or may experience delays in enrolling patients for our clinical trials.***

Due in part to the nature of the indications for which we our developing our product candidates, we have experienced and may continue to experience difficulties or delays in recruiting and enrolling a sufficient number of patients to participate in our clinical trials due to a variety of reasons, including competition from other clinical trial programs for the same indication, failure of patients to meet our enrollment criteria and premature withdrawals of patients prior to the completion of clinical trials.

In addition, the FDA and institutional review boards may also require large numbers of patients, and the FDA may require that we repeat a clinical trial. Any delay resulting from our failure to enroll a sufficient number of patients on a timely basis may have a material adverse effect on our business.

As we cannot predict whether or when we will obtain regulatory approval to commercialize our product candidates, we cannot predict the timing of any future revenue from these product candidates.

We cannot commercialize any of our products to generate revenue until the appropriate regulatory authorities have reviewed and approved the applications for the product candidates. We cannot ensure that the regulatory agencies will complete their review processes in a timely manner or that we will obtain regulatory approval for any product candidate that we or our collaborators develop. Satisfaction of regulatory requirements typically takes many years, is dependent upon the type, complexity and novelty of the product and requires the expenditure of substantial resources. Regulatory approval processes outside the United States include all of the risks associated with the FDA approval process. In addition, we may experience delays or rejections based upon additional government regulation from future legislation or administrative action or changes in FDA policy during the period of product development, clinical trials and FDA regulatory review.

****We have limited experience in conducting advanced clinical trials.***

We have initiated Phase 1/2 clinical trials evaluating product candidates for hemophilia A, hemophilia B, and two LSDs, MPS I (Hurler syndrome) and MPS II (Hunter syndrome). For potential marketing application approval, additional clinical testing will be required, which involves significantly greater resources, commitments and expertise. Therefore, we may be required to scale up our operations and enter into collaborative relationships with pharmaceutical companies that could assume responsibility for late-stage development and commercialization.

We have limited experience in conducting advanced clinical trials and may not possess the necessary resources and expertise to complete such trials, and we may need to seek partnerships or collaboration with third parties to advance these trials. We have entered into a collaborative agreement with Bioverativ to provide funding and assistance in the development of certain product candidates through the clinical trial process. Under the agreement with Bioverativ, we are responsible for all research and development through the first human clinical trial for the treatment of beta-thalassemia and both parties are responsible for research and development through the submission of IND for product candidates to treat sickle cell disease, SCD. On May 10, 2017, we entered into an agreement with Pfizer to establish a collaboration for the research, development and commercialization of SB-525 for hemophilia A, and closely related products. However, there is no guarantee that we will be able to enter into future collaborative relationships with third parties that can provide us with the funding and expertise for later stage trials.

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

We expect to rely, to some extent, on our strategic partners to provide funding in support of our research and to perform independent research and preclinical and clinical testing. Our technology is broad-based, and we do not currently possess the resources necessary to fully develop and commercialize potential products that may result from our technologies or the resources or capabilities to complete the lengthy marketing approval processes that may be required for the products. Therefore, we plan to rely on strategic partnerships to help us develop and commercialize our products.

We have entered into a collaborative agreement with Bioverativ to provide funding and assistance in the development of certain product candidates through the clinical trial process. Under the agreement with Bioverativ, we are responsible for all research and development through the first human clinical trial for the treatment of beta-thalassemia and both parties are responsible for research and development through the submission of IND for product candidates to treat sickle cell disease (SCD). On May 10, 2017, we entered into an agreement with Pfizer to establish a collaboration for the research, development and commercialization of SB-525 for hemophilia A, and closely related products. Under the agreement with Pfizer, we are responsible for conducting the Phase 1/2 clinical trial and certain manufacturing activities for SB-525, while Pfizer will be responsible for subsequent worldwide development, manufacturing, marketing and commercialization of SB-525. Sangamo and Pfizer may also collaborate in the research and development of additional adeno-associated virus, or AAV based gene therapy products for hemophilia A. We also intend to seek partnership for our clinical programs for the treatment of HIV/AIDs.

If we are unable to find partners or if the partners we find, such as Bioverativ, Pfizer and Shire, are unable or unwilling to advance our programs, or if they do not diligently pursue product approval, this may slow our progress and adversely affect our ability to generate revenues. In addition, our partners may sublicense or abandon development programs or we may have disagreements or disputes with our partners, which would cause associated product development to slow or cease. In addition, the business or operations of our partners may change significantly through restructuring, acquisition or other strategic transactions or decisions that may negatively impact their ability to advance our programs.

There can be no assurance that we will be able to establish further strategic collaborations for our products. We may require significant time to secure collaborations or partners because we need to effectively market the benefits of our technology to these future collaborators and partners, which may direct the attention and resources of our research and development personnel and management away from our primary business operations. Further, each collaboration or partnering arrangement will involve the negotiation of terms that may be unique to each collaborator or partner. These business development efforts may not result in a collaboration or partnership.

The loss of partnering agreements may delay or terminate the potential development or commercialization of products we may derive from our technologies, but it may also delay or terminate our ability to test our product candidates. If any partner fails to conduct the collaborative activities successfully or in a timely manner, the preclinical or clinical development or commercialization of the affected product candidates or research programs could be delayed or terminated.

Under typical partnering agreements, we would 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 the commercialized products. Achieving these milestones will depend, in part, on the efforts of our partner as well as our own. If we, or any partner, fail to meet specific milestones, then the partnership may be terminated, which could reduce our revenues. For more information on risks relating to our third-party collaborative agreements, see “Risks Relating to our Collaborative Relationships.”

We may be unable to license gene transfer technologies that we may need to commercialize our ZFP technology.

In order to regulate or modify a gene in a cell, the ZFP must be efficiently delivered to the cell. We have licensed certain gene transfer technologies for our ZFP in research including AAV and mRNA technology. We are evaluating these systems and other technologies that may need to be used in the delivery of ZFP into cells for *in vitro* and *in vivo* applications. However, we may not be able to license the gene transfer technologies required to develop and commercialize our product candidates. We have not developed our own gene transfer technologies, and we rely on our ability to enter into license agreements to provide us with rights to the necessary gene transfer technology. Our approach has been to license appropriate technology as required. The inability to obtain a license to use gene transfer technologies with entities which own such technology on reasonable commercial terms, if at all, could delay or prevent the preclinical evaluation, drug development collaborations, clinical testing, and/or commercialization of our therapeutic product candidates.

Our gene regulation and genome editing technology is relatively new, and if we are unable to use this technology in all our intended applications, it would limit our revenue opportunities.

Our technology involves a relatively new approach to gene regulation and genome editing. Although we have generated ZFPs for thousands of gene sequences, we have not created ZFPs for all gene sequences and may not be able do so, which could limit the usefulness of our technology. In addition, while we have demonstrated the function of engineered ZFNs and ZFP TFs in mammalian cells, yeast, insects, plants and animals, we have not yet demonstrated clinical efficacy of this technology in a controlled clinical trial in humans, and the failure to do so could restrict our ability to develop commercially viable products. If we, and our collaborators or strategic partners, are unable to extend our results to new commercially important genes, experimental animal models, and human clinical studies, we may be unable to use our technology in all its intended applications.

The expected value and utility of our ZFNs and ZFP TFs is in part based on our belief that the targeted editing of genes or specific regulation of gene expression may enable us to develop a new therapeutic approach as well as to help scientists better understand the role of genes in disease, and to aid their efforts in drug discovery and development. We also believe that ZFP-mediated targeted genome editing and gene regulation will have utility in agricultural applications. There is only a limited understanding of the role of specific genes in all these fields. Life sciences companies have developed or commercialized only a few products in any of these fields based on results from genomic research or the ability to regulate gene expression. We, our collaborators or our strategic partners, may not be able to use our technology to identify and validate drug targets or to develop commercial products in the intended markets.

Effective delivery of ZFNs and ZFP TFs into the appropriate target cells and tissues is critical to the success of the therapeutic applications of our ZFP technology. In order to have a meaningful therapeutic effect, these products must be delivered to sufficient numbers of cells in the targeted tissue. The ZFN or ZFP TF must be present in that tissue for sufficient time to effect either modification of a therapeutically relevant gene or regulation of its expression. In our current clinical and preclinical programs, we administer these product candidates as a nucleic acid that encodes the ZFN or ZFP TF. We use different formulations to deliver the ZFN or ZFP TF depending on the required duration of expression, the targeted tissue and the indication that we intend to treat, including our proprietary AAV delivery system. However, there can be no assurances that we will be able to effectively deliver our ZFNs and ZFP TFs to produce a beneficial therapeutic effect.

We are conducting proprietary research to discover new product candidates. These programs increase our financial risk of product failure, may significantly increase our research expenditures, and may involve conflicts with future collaborators and strategic partners.

Our proprietary research programs consist of research that is funded solely by us or by grant funding and in which we retain exclusive rights to therapeutic products generated by such research. This is in contrast to certain of our research programs that may be funded by corporate partners in which we may share rights to any resulting products. Conducting proprietary research programs may not generate corresponding revenue and may create conflicts with our collaborators or strategic partners over rights to our intellectual property with respect to our proprietary research activities. Any conflict with our collaborators or strategic partners could reduce our ability to enter into future collaborations or partnering agreements and negatively impact our relationship with existing collaborators and partners that could reduce our revenue and delay or terminate our product development. As we continue to focus our strategy on proprietary research and therapeutic development, we expect to experience greater business risks, expend significantly greater funds and require substantial commitments of time from our management and staff.

Even if our technology proves to be effective, it still may not lead to commercially viable products.

Even if our collaborators or strategic partners are successful in using our ZFP technology in drug discovery, protein production, therapeutic development or plant agriculture, they may not be able to commercialize the resulting products or may decide to use other methods competitive with our technology. To date, no company has received marketing approval or has developed or commercialized any therapeutic or agricultural products based on our technology. Should our technology fail to provide safe, effective, useful or commercially viable approaches to the discovery and development of these products, this would significantly limit our business and future growth and would adversely affect our value.

Even if our product development efforts are successful and even if the requisite regulatory approvals are obtained, our products may not gain market acceptance among physicians, patients, healthcare payers and the medical community.

A number of additional factors may limit the market acceptance of our products including the following:

- rate of adoption by healthcare practitioners;
- rate of a product's acceptance by the target population;
- timing of market entry relative to competitive products;

- availability of alternative therapies;
- price of our product relative to alternative therapies;
- availability of third-party reimbursement;
- extent of marketing efforts by us and third-party distributors or agents retained by us; and
- side-effects or unfavorable publicity concerning our products or similar products.

Therefore, even after we have obtained the required regulatory approval for our products, we may not be able to commercialize these products successfully if we cannot achieve an adequate level of market acceptance.

Regulatory approval, if granted, will be limited to specific uses or geographic areas, which could limit our ability to generate revenues.

Regulatory approval will be limited to the indicated use for which we can market a product. Further, once regulatory approval for a product is obtained, the product and its manufacturer are subject to continual review. Discovery of previously unknown problems with a product or manufacturer may result in restrictions on the product, manufacturer, and manufacturing facility, including withdrawal of the product from the market. In Japan and Europe, regulatory agencies also set or approve prices.

Even if regulatory clearance of a product is granted, this clearance is limited to those specific states and conditions for which the product is useful, as demonstrated through clinical trials. We cannot ensure that any product developed by us, alone or with others, will prove to be safe and effective in clinical trials and will meet all of the applicable regulatory requirements needed to receive marketing clearance in a given country.

Outside the United States, our ability to market a product is contingent upon receiving a marketing authorization from appropriate regulatory authorities; therefore we cannot predict whether or when we would be permitted to commercialize our product outside the United States. These foreign regulatory approval processes include all of the risks associated with FDA clearance described above.

We currently rely on third parties to conduct some or all aspects of manufacturing of our product candidates for preclinical and clinical development. If one of our third-party manufacturers fails to perform adequately or fulfill our needs, we may be required to incur significant costs and devote significant efforts, to find new suppliers or manufacturers.

We currently have limited experience in, and we do not own facilities for, clinical-scale manufacturing of our product candidates and we rely upon third-party contract manufacturing organizations to manufacture and supply drug product for our preclinical and clinical studies. The manufacture of pharmaceutical products in compliance with the FDA's current good manufacturing practices, or cGMP, requires significant expertise and capital investment, including the development of advanced manufacturing techniques and process controls. Manufacturers of pharmaceutical products often encounter difficulties in production, including difficulties with production costs and yields, quality control, including stability of the product candidate and quality assurance testing, shortages of qualified personnel, as well as compliance with strictly enforced cGMP requirements, other federal and state regulatory requirements and foreign regulations. If our manufacturers were to encounter any of these difficulties or otherwise fail to comply with their obligations to us or under applicable regulations, our ability to provide study drugs in our clinical studies would be jeopardized. Any delay or interruption in the supply of clinical study materials could delay the completion of our clinical studies, increase the costs associated with maintaining our clinical study programs and, depending upon the period of delay, require us to commence new studies at significant additional expense or terminate the studies completely.

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

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

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

We do not currently have the infrastructure or capability to manufacture, market and sell therapeutic products on a commercial scale.

In order for us to commercialize our therapeutic products directly, we would need to develop, or obtain through outsourcing arrangements, the capability to manufacture, market and sell our products on a commercial scale. Currently, we do not have the ability nor the financial resources to establish the infrastructure and organizations needed to execute these functions, including such infrastructure needed for the commercialization of any product from our therapeutic program, which can be complex and costly. If we are unable to establish adequate manufacturing, sales, marketing and distribution capabilities, we will not be able to directly commercialize our therapeutics products, which would limit our future growth.

Risks Relating to our Industry

If our competitors develop, acquire, or market technologies or products that are more effective than ours, this would reduce or eliminate our commercial opportunity.

Any products that we or our collaborators or strategic partners develop by using our ZFP technology platform will enter into highly competitive markets. Even if we are able to generate products that are safe and effective for their intended use, competing technologies may prove to be more effective or less expensive, which, to the extent these competing technologies achieve market acceptance, will limit our revenue opportunities. In some cases, competing technologies have proven to be effective and less expensive. Competing technologies may include other methods of regulating gene expression or modifying genes. ZFNs and ZFP TFs have broad application in the life sciences industry and compete with a broad array of new technologies and approaches being applied to genetic research by many companies. Competing proprietary technologies with our product development focus include but are not limited to:

- For genome editing and gene therapy products:
    - recombinant proteins;
    - other gene therapy/cDNAs;
    - antisense;
    - siRNA and microRNA approaches, exon skipping;
    - small molecule drugs;
    - monoclonal antibodies;
    - CRISPR/Cas technology; and
    - TALE proteins, meganucleases, and MegaTALs.
- For our Non-Therapeutic Applications:
    - *For protein production:* gene amplification, CRISPR/Cas technology, TALE technology, insulator technology, and mini-chromosomes;
    - *For target validation:* antisense, siRNA, TALE technology and CRISPR/Cas technology;

- *For plant agriculture:* recombination approaches, mutagenesis approaches, TALE technology, CRISPR/Cas technology, mini-chromosomes; and
- *For transgenic animals:* somatic nuclear transfer, embryonic stem cell, TALE, CRISPR/Cas technology and transposase technologies.

In addition to possessing competing technologies, our competitors include pharmaceutical and biotechnology companies with:

- substantially greater capital resources than ours;
- larger research and development staffs and facilities than ours; and
- greater experience in product development and in obtaining regulatory approvals and patent protection.

These organizations also compete with us to:

- attract qualified personnel;
- attract parties for acquisitions, joint ventures or other collaborations; and
- license the proprietary technologies of academic and research institutions that are competitive with our technology, which may preclude us from pursuing similar opportunities.

Accordingly, our competitors may succeed in obtaining patent protection or commercializing products before us. In addition, any products that we develop may compete with existing products or services that are well established in the marketplace.

Our gene therapy product candidates are based on a novel technology, which makes it difficult to predict the timing and costs of development and of subsequently obtaining regulatory approval.

We have concentrated our research and development efforts on genome editing, gene therapy, gene regulation and cell therapy. The regulatory approval process for novel product candidates such as ours is unclear and may be lengthier and more expensive than the process for other, better-known or more extensively studied product candidates.

Regulatory requirements governing gene and cell therapy products have changed frequently and may continue to change in the future. The FDA has established the Office of Cellular, Tissue and Gene Therapies within its Center for Biologics Evaluation and Research, or CBER, to consolidate the review of gene therapy and related products, and has established the Cellular, Tissue and Gene Therapies Advisory Committee to advise CBER in its review. In addition, adverse developments in clinical trials of gene therapy products conducted by others may cause the FDA or other oversight bodies to change the requirements for approval of our product candidates.

These regulatory review committees and advisory groups, and any new guidelines they promulgate, may lengthen the regulatory review process, require us to perform additional preclinical studies or clinical trials, increase our development costs, lead to changes in regulatory positions and interpretations, delay or prevent approval and commercialization of our current or future product candidates or lead to significant post-approval limitations or restrictions. As we advance our product candidates, we will be required to consult with these regulatory and advisory groups and comply with applicable guidelines. If we fail to do so, we may be required to delay or discontinue development of our product candidates. These additional processes may result in a review and approval process that is longer than we otherwise would have expected. Delay or failure to obtain, or unexpected costs in obtaining, the regulatory approval necessary to bring a potential product to market could decrease our ability to generate sufficient product revenue, and our business, financial condition, results of operations and prospects would be harmed. Even if our product candidates are approved, we expect that the FDA will require us to submit follow-up data regarding our clinical trial subjects for a number of years after approval. If this follow-up data shows negative long-term safety or efficacy outcomes for these patients, the FDA may revoke its approval or change the label of our products in a manner that could have an adverse impact on our business.

In addition, adverse developments in clinical trials of gene therapy products conducted by others may cause the FDA or other oversight bodies to change the requirements for approval of our product candidates. Although numerous companies are currently advancing gene therapy products through clinical trials, to our knowledge, only two gene therapy products, uniQure N.V.'s Glybera and GlaxoSmithKline's Strimvelis, have received marketing authorization from the European Commission while FDA has approved cell-based gene therapies, it is only currently reviewing a vector-based gene therapy, with a decision expected in January 2018. As a result, it is difficult to determine how long it will take or how much it will cost to obtain regulatory approvals for our product candidates.

Adverse public perception in the field of gene therapy and genome editing may negatively impact regulatory approval of, or demand for, our potential products.

Our potential therapeutic products are delivered to patients as gene-based drugs, or gene therapy. The clinical and commercial success of our potential products will depend in part on public acceptance of the use of gene therapy and genome editing for the prevention or treatment of human diseases. Public attitudes may be influenced by claims that gene therapy or genome editing is unsafe, and, consequently, our products may not gain the acceptance of the public or the medical community. Negative public reaction to gene therapy or genome editing in general could result in greater government regulation and stricter labeling requirements of gene based products, including any of our products, and could cause a decrease in the demand for any products we may develop.

Laws or public sentiment may limit the production of genetically modified agricultural products, and these laws could reduce our partner's ability to sell such products.

Genetically modified products are currently subject to public debate and heightened regulatory scrutiny, either of which could prevent or delay production of agricultural products. We have a research license and commercial option agreement with DAS through which we provide DAS with access to our proprietary ZFP technology and the exclusive right to use our ZFP technology to modify the genomes or alter the nucleic acid or protein expression of plant cells, plants or plant cell cultures. The field-testing, production and marketing of genetically modified plants and plant products are subject to federal, state, local and foreign governmental regulation. Regulatory agencies administering existing or future regulations or legislation may not allow production and marketing of our genetically modified products in a timely manner or under technically or commercially feasible conditions. In addition, regulatory action or private litigation could result in expenses, delays or other impediments to our product development programs or the commercialization of resulting products.

The FDA currently applies the same regulatory standards to foods developed through genetic engineering as those applied to foods developed through traditional plant breeding. Genetically engineered food products, however, will be subject to pre-market review if these products raise safety questions or are deemed to be food additives. Governmental authorities could also, for social or other purposes, limit the use of genetically modified products created with our gene regulation technology.

Even if the regulatory approval for genetically modified products developed under our agreement with DAS was obtained, our success will also depend on public acceptance of the use of genetically modified products including drugs, plants, and plant products. Claims that genetically modified products are unsafe for consumption or pose a danger to the environment may influence public attitudes. Our genetically modified products may not gain public acceptance. The subject of genetically modified organisms has received negative publicity in the United States and particularly in Europe, and such publicity has aroused public debate. The adverse publicity in Europe could lead to greater regulation and trade restrictions on imports of genetically altered products. Similar adverse public reaction or sentiment in the United States to genetic research and its resulting products could result in greater domestic regulation and could decrease the demand for our technology and products.

Risks Relating to our Finances

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

We have generated operating losses since we began operations in 1995. Our net losses for the years ended December 31, 2016, 2015 and 2014 were $71.7 million, $40.7 million and $26.4 million, respectively. 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 ZFP 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. As of September 30, 2017, we had an accumulated deficit of $482.4 million. Since our initial public offering in 2000, we have generated an aggregate of approximately $418.6 million in gross proceeds from the sale of our equity securities. We expect to continue to incur additional operating losses for the next several years as we continue to advance 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 curtail or suspend our operations.

On an ongoing basis, management evaluates its estimates related to the recognition of revenue from upfront license payments from our collaborators and strategic partners. These estimates are based on various factors that could affect the recognition of revenue.

We may be unable to raise additional capital, which would harm our ability to develop our technology and products.

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. While we believe our financial resources will be adequate to sustain our current operations for at least the next twelve months, we may need to seek additional sources of capital through equity or debt financing. In addition, as we focus our efforts on proprietary human therapeutics, we will need to seek FDA approval of potential products, a process that could cost in excess of hundreds of millions of dollars per product. Furthermore, we may experience difficulties in accessing the capital market 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. 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 materially adversely affect our business and our ability to develop our technology and products candidates. Furthermore, any sales of additional equity securities may result in dilution to our stockholders and any debt financing may include business and financial covenants that restricts our operations.

We are at the development phase of operations and may not succeed or become profitable.

We began operations in 1995 and are in the early phases of product development, and we have incurred significant losses since inception. To date, our revenues have been generated from collaboration agreements, other collaborations in non-therapeutic applications of our technology, federal government research grants and grants awarded by research foundations. Our focus on higher-value therapeutic product development and related collaboration requires us to incur substantial expenses associated with product development. In addition, the preclinical or clinical failure of any single product may have a significant effect on the actual or perceived value of our stock. Our business is subject to all of the risks inherent in the development of a new technology, which includes the need to:

- attract and retain qualified scientific and technical staff and management, particularly scientific staff with expertise to develop our early-stage technology into therapeutic products;
- obtain sufficient capital to support the expense of developing our technology platform and developing, testing and commercializing products;
- develop a market for our products; and
- successfully transition from a company with a research focus to a company capable of supporting commercial activities.

Risks Relating to our Relationships with Collaborators and Strategic Partners

If conflicts arise between us and our collaborators or strategic partners, these parties may act in their self-interest, which may limit our ability to implement our strategies.

If conflicts arise between our corporate or academic collaborators or strategic partners and us, the other party may act in its self-interest, which may limit our ability to implement our strategies. Some of our academic collaborators and strategic partners are conducting multiple product development efforts within each area that is the subject of the collaboration with us. Our collaborators or strategic partners may develop, either alone or with others, products in related fields that are competitive with the products or potential products that are the subject of these collaborations. Competing products, either developed by the collaborators or strategic partners or to which the collaborators or strategic partners have rights, may result in the withdrawal of partner support for our product candidates.

Some of our collaborators or strategic partners could also become our competitors in the future. Our collaborators or strategic partners could develop competing products, preclude us from entering into collaborations with their competitors, fail to obtain timely regulatory approvals, terminate their agreements with us prematurely, or fail to devote sufficient resources to the development and commercialization of products. Any of these developments could harm our product development efforts.

****Our collaborators and strategic partners may control aspects of our clinical trials, which could result in delays and other obstacles in the commercialization of our proposed products.***

We depend on third-party collaborators and strategic partners to design and conduct our clinical trials for some of our therapeutic programs. As a result, we may not be able to conduct these programs in the manner or on the time schedule we currently contemplate, which may negatively impact our business operations. In addition, if any of these collaborators or strategic partners withdraws support for our programs or proposed products or otherwise impair their development; our business could be negatively affected.

We have a collaborative agreement with Shire, pursuant to which we are engaging in a joint program with Shire to research, develop and commercialize human therapeutics and diagnostics for Huntington's disease and other monogenic diseases based on our ZFP technology. Under this agreement, we will provide certain target feasibility activities and upon Shire's request, certain research activities under a research plan, agreed upon by both companies. Shire is responsible for clinical development and commercialization of products generated from the research program from and after the acceptance of an IND or CTA for the product.

We also have a collaborative agreement with Bioverativ for the clinical development and commercialization of therapeutics based on our ZFP technology for hemoglobinopathies, including beta-thalassemia and SCD. Under the agreement, we are responsible for all discovery, research and development activities through the first human clinical trial for the first product candidate developed for the treatment of beta-thalassemia. In the SCD program, both parties are responsible for research and development activities through the submission of an IND.

In addition, under our agreement with Pfizer, we will be responsible for conducting the Phase 1/2 clinical trial and certain manufacturing activities for SB-525, while Pfizer will be responsible for subsequent worldwide clinical development, manufacturing, marketing and commercialization of SB-525. We may also collaborate in the research and development of AAV-based gene therapy products for hemophilia.

Under our agreements with Bioverativ and Pfizer, they have control and broad discretion over all or certain aspects of the clinical development and commercialization of any product developed under the agreement, and we will have little, if any, influence on how these programs will be conducted. Our lack of control over the clinical development in our agreement with Bioverativ and Pfizer could cause delays or other difficulties in the development and commercialization of our product candidates, which may prevent us from completing the intended IND filings in a timely fashion and receiving any milestone, royalty payments and other benefits under the agreement. In addition, under their respective agreements, Bioverativ, Pfizer and Shire 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 lower than the full amounts stated above.

Our collaborators or strategic partners may decide to adopt alternative technologies or may be unable to develop commercially viable products with our technology, which would negatively impact our revenues and our strategy to develop these products.

Our collaborators or strategic partners may adopt alternative technologies, which could decrease the marketability of ZFP technology. Additionally, because many of our collaborators or strategic partners 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 our technology and would delay or terminate the development of potential products based on our ZFP technology. Further, our collaborators and strategic partners may elect not to develop products arising out of our collaborative and strategic partnering arrangements or to devote sufficient resources to the development, manufacturing, marketing or sale of these products. If they terminate the collaborative relationship with us, we will be required to seek the support of other partners or collaborators. We may not have sufficient resources and expertise to develop these programs by ourselves, and we may not be able to identify a suitable partner or negotiate a favorable collaboration agreement to allow us to continue the development of these programs. If any of these events occur, we may not be able to develop our technologies or commercialize our products.

If we do not successfully commercialize ZFP-based research reagents, ZFP-modified cell lines for commercial protein production, or ZFP-engineered transgenic animals under our license agreement with Sigma-Aldrich Corporation or ZFP-based agricultural products with Dow AgroSciences, or if Sigma-Aldrich Corporation or Dow AgroSciences terminates our agreements, our ability to generate revenue under these license agreements may be limited.

In July 2007, we entered into a license agreement with Sigma to collaborate on the application and development of ZFP-based products for use in the laboratory research reagents markets. The agreement provides Sigma with access to our ZFP technology and the exclusive right to use our ZFP technology to develop and commercialize products for use as research reagents and to offer services in related research fields. Under the agreement, Sigma has exclusive rights to develop and distribute ZFP-modified cell lines for commercial production of protein pharmaceuticals and, certain ZFP-engineered transgenic animals for commercial applications. In addition, under our license agreement with DAS relating to plant agriculture, DAS has the exclusive right to develop agricultural products using our ZFP technology in plant cells, plants or plant cell cultures. Both Sigma and DAS have the right to sublicense our technology in their respective areas. In addition to upfront payments, we may also receive additional license fees, shared sublicensing revenues, royalty payments and milestone payments depending on the success of the development and commercialization of the licensed products and services covered under both agreements. The commercial milestones and royalties are typically based upon net sales of licensed products.

We cannot be certain that we or our collaboration partners will succeed in the development of commercially viable products in these fields of use, and there is no guarantee that we or our collaboration partners will achieve the milestones set forth in the respective license agreements. To the extent we or our collaboration partners do not succeed in developing and commercializing products or if we or our collaboration partners fail to achieve such milestones, our revenues and benefits under the license agreements will be limited. In addition, the respective license agreements may be terminated by Sigma and DAS at any time by providing us with a 90-day notice. In the event Sigma or DAS decides to terminate the license agreements, our ability to generate revenue under such license agreements will cease.

Our collaborations with outside scientists may be subject to change, which could limit our access to their expertise.

We work with scientific advisors and collaborators at academic research institutions. These scientists are not our employees and may have other commitments that would limit their availability to us. Although our scientific advisors generally agree not to do competing work, if a conflict of interest between their work for us and their work for another entity arises, we may lose their services. Although our scientific advisors and academic collaborators sign agreements not to disclose our confidential information, it is possible that some of our valuable proprietary knowledge may become publicly known through them, which may cause competitive harm to our business.

Risks Relating to our Intellectual Property and Business Operation

****Because it is difficult and costly to protect our proprietary rights, and third parties may have filed patent applications that are similar to ours, we cannot guarantee the proprietary protection of our technologies and products.***

Our commercial success will depend in part on obtaining patent protection of our technology and successfully defending any of our patents that may be challenged. The patent positions of pharmaceutical and biotechnology companies can be highly uncertain and can involve complex legal and factual questions. No consistent policy regarding the breadth of claims allowed in biotechnology patents has emerged to date. Accordingly, we cannot predict the breadth of claims allowed in patents we own or license that a third party may receive.

We are a party to various license agreements that give us rights under specified patents and patent applications. Our current licenses, as our future licenses frequently will, contain performance obligations. If we fail to meet those obligations, the licenses could be terminated. If we are unable to continue to license these technologies on commercially reasonable terms, or at all, we may be forced to delay or terminate aspects of our product development and research activities.

With respect to our present and any future sublicenses, since our rights derive from those granted to our sublicensor, we are subject to the risk that our sublicensor may fail to perform its obligations under the master license or fail to inform us of useful improvements in, or additions to, the underlying intellectual property owned by the original licensor.

We are unable to exercise the same degree of control over intellectual property that we license from third parties as we exercise over our internally developed intellectual property. We do not control the prosecution of certain of the patent applications that we license from third parties; therefore, the patent applications may not be prosecuted as we desire or in a timely manner.

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

- we or our licensors were the first to make the inventions covered by each of our pending patent applications;
- we or our licensors were the first to file patent applications for these inventions;
- the patents of others will not have an adverse effect on our ability to do business;
- others will not independently develop similar or alternative technologies or reverse engineer any of our products, processes or technologies;
- any of our pending patent applications will result in issued patents;
- any patents issued or licensed to us or our collaborators or strategic partners will provide a basis for commercially viable products or will provide us with any competitive advantages;
- any patents issued or licensed to us will not be challenged and invalidated by third parties; or
- we will develop additional products, processes or technologies that are patentable.

Others have filed and in the future are likely to file patent applications that are similar to ours. We are aware that there are academic groups and other companies that are attempting to develop technology that is based on the use of zinc finger, TALE, CRISPR/Cas and other DNA-binding proteins, and that these groups and companies have filed patent applications. Several patents have been issued, although we have no current plans to use the associated inventions. If these or other patents issue, it is possible that the holder of any patent or patents granted on these applications may bring an infringement action against our collaborators, strategic partners, or us claiming damages and seeking to enjoin commercial activities relating to the affected products and processes. The costs of litigating the claim could be substantial. Moreover, we cannot predict whether we, our collaborators, or strategic partners would prevail in any actions. In addition, if the relevant patent claims were upheld as valid and enforceable and our products or processes were found to infringe the patent or patents, we or our collaborators could be prevented from making, using, or selling the relevant product or process unless we or our collaborators could obtain a license or were able to design around the patent claims. We can give no assurance that such a license would be available to us and our collaborators on commercially reasonable terms, or at all, or that we would be able to successfully design around the relevant patent claims. There may be significant litigation in the genomics industry regarding patent and other intellectual property rights, which could subject us to litigation. If we become involved in litigation, it could consume a substantial portion of our managerial and financial resources.

We rely on trade secrets to protect technology where we believe patent protection is not appropriate or obtainable. Trade secrets, however, are difficult to protect. While we require employees, academic collaborators and consultants to enter into confidentiality agreements, we may not be able to adequately protect our trade secrets or other proprietary information or enforce these confidentiality agreements.

Our collaborators, strategic partners, and scientific advisors have rights to publish data and information in which we may have rights. If we cannot maintain the confidentiality of our technology and other confidential information in connection with our collaborations and strategic partnerships, then we may not be able to receive patent protection or protect our proprietary information.

If we use biological and hazardous materials in a manner that causes injury or violates laws, we may be liable for damages.

Our research and development activities involve the controlled use of potentially harmful biological materials as well as hazardous materials, chemicals, and various radioactive compounds typically employed in molecular and cellular biology. We routinely use cells in culture and gene delivery vectors, and we employ small amounts of radioisotopes in trace experiments. Although we maintain up-to-date licensing and training programs, we cannot completely eliminate the risk of accidental contamination or injury from the use, storage, handling, or disposal of these materials. In the event of contamination or injury, we could be held liable for damages that result, and any liability could exceed our resources. We currently carry insurance covering certain claims arising from our use of these materials. However, if we are unable to maintain our insurance coverage at a reasonable cost and with adequate coverage, our insurance may not cover any liability that may arise. We are subject to federal, state, and local laws and regulations governing the use, storage, handling, and disposal of these materials and specified waste products. To date, we have not experienced significant costs in complying with regulations regarding the use of these materials.

Failure to attract, retain, and motivate skilled personnel and cultivate key academic collaborations will delay our product development programs and our research and development efforts.

Our success depends on our continued ability to attract, retain, and motivate highly qualified management and scientific personnel and our ability to develop and maintain important relationships with leading research and academic institutions and scientists. Competition for skilled and qualified personnel and academic and other research collaborations is intense. If we lose the services of personnel with the necessary skills, including the members of our senior management team, it could significantly impede the achievement of our research and development objectives. If we fail to negotiate additional acceptable collaborations with academic and other research institutions and scientists, or if our existing collaborations are unsuccessful, our development programs may be delayed or may not succeed.

Risks Relating to our Common Stock and Corporate Organization

****Our stock price has been volatile and may continue to be volatile, which could result in substantial losses for investors.***

Our stock price has been volatile and may continue to be volatile, which could cause stockholders to incur substantial losses. An active public market for our common stock may not be sustained, and the market price of our common stock may continue to be highly volatile. The market price of our common stock has fluctuated significantly in response to various factors, some of which are beyond our control, including but not limited to the following:

- announcements by us or collaborators providing updates on the progress or development status of product candidates;
- data from clinical trials;

- initiation or termination of clinical trials;
- changes in market valuations of similar companies;
- overall market and economic conditions, including the equity markets for emerging biotechnology companies;
- deviations in our results of operations from the guidance given by us;
- announcements by us or our competitors of new or enhanced products, technologies or services or significant contracts, acquisitions, strategic relationships, joint ventures or capital commitments;
- announcement of changes in business and operations by our collaborators and partners, or changes in our existing collaboration agreements;
- regulatory developments;
- changes, by one or more of our security analysts, in recommendations, ratings or coverage of our stock.
- additions or departures of key personnel;
- future sales of our common stock or other securities by us, management or directors, liquidation of institutional funds that comprised large holdings of our stock; and
- decreases in our cash balances.

Our stock price is also influenced by public perception of gene therapy and government regulation of potential products.

Reports of serious adverse events in a retroviral gene transfer trial for infants with X-linked severe combined immunodeficiency (X-linked SCID) in France and subsequent FDA actions putting related trials on hold in the United States had a significant negative impact on the public perception and stock price of certain companies involved in gene therapy. Stock prices of these companies declined whether or not the specific company was involved with retroviral gene transfer for the treatment of infants with X-linked SCID, or whether the specific company's clinical trials were placed on hold in connection with these events. Other potential adverse events in the field of gene therapy may occur in the future that could result in greater governmental regulation of our potential products and potential regulatory delays relating to the testing or approval of our potential products. These external events may have a negative impact on public perception of our business, which could cause our stock price to decline.

****We may be subject to claims for rescission and may be subject to other penalties for shares sold under the ATM Agreement.***

We are a party to an Amended and Restated At-the-Market Offering Program Sales Agreement, or the ATM Agreement, pursuant to which we may sell, from time to time, an aggregate of $75 million of our common stock through the investment bank acting as our sales agent under the ATM Agreement. The shares under the original At-the-Market Offering Program Sales Agreement entered into with the sales agent in December 2016 were initially to be sold pursuant to a shelf registration statement on Form S-3 that initially became effective in February 2014, or the prior registration statement. In March 2017, we sold an aggregate of $3.8 million of our common stock, and received net proceeds of $3.4 million, under the ATM Agreement at an average price per share of $4.39, and at the times of those sales, we believed that the prior registration statement was then effective. However, subsequent to those sales, we were advised that the prior registration statement had in fact expired prior to the time of the sales in March 2017 ATM sales. Because our registration statement had in fact expired prior to the time of such sales, we may be deemed to have violated Section 5 of the Securities Act, which requires registration of public offerings of securities. Consequently, we may be subject to claims for rescission by purchasers who purchased shares of our common stock under the ATM Agreement in March 2017. Under Section 12(a)(1) of the Securities Act, a purchaser of security in a transaction made in violation of Section 5 of the Securities Act may obtain recovery of the consideration paid in connection with its purchase, plus statutory interest, or, if it had already sold the shares, recover damages resulting from its purchase. While we believe it is unlikely that a successful claim will be asserted against us by any purchasers who purchased shares of our common stock under the ATM Agreement in March 2017, we cannot guarantee that no such legal claims will be asserted against us by any purchasers. In addition, we could become subject to enforcement actions and/or penalties and fines by federal authorities, and we are unable to predict the likelihood of any such enforcement actions being brought against us, or the amount of any such potential penalties or fines.

Anti-takeover provisions in our certificate of incorporation and Delaware law could make an acquisition of our company more difficult and could prevent attempts by our stockholders to remove or replace current management.

Anti-takeover provisions of Delaware law and in our certificate of incorporation and our bylaws may discourage, delay or prevent a change in control of our company, even if a change in control would be beneficial to our stockholders. In addition, these provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors. In particular, under our certificate of incorporation our board of directors may issue up to 5,000,000 shares of preferred stock with rights and privileges that might be senior to our common stock, without the consent of the holders of the common stock. Moreover, without any further vote or action on the part of the stockholders, the board of directors would have the authority to determine the price, rights, preferences, privileges, and restrictions of the preferred stock. This preferred stock, if it is ever issued, may have preference over, and harm the rights of, the holders of common stock. Although the issuance of this preferred stock would provide us with flexibility in connection with possible acquisitions and other corporate purposes, this issuance may make it more difficult for a third party to acquire a majority of our outstanding voting stock.

Similarly, our authorized but unissued common stock is available for future issuance without stockholder approval.

In addition, our bylaws:

- state that stockholders may not act by written consent but only at a stockholders' meeting;
- establish advance notice requirements for nominations for election to the board of directors or proposing matters that can be acted upon at stockholders' meetings; and
- prohibit stockholders from calling a special meeting of stockholders.

We are also subject to Section 203 of the Delaware General Corporation Law, which provides, subject to certain exceptions, that if a person acquires 15% of our voting stock, the person is an "interested stockholder" and may not engage in "business combinations" with us for a period of three years from the time the person acquired 15% or more or our voting stock. The application of Section 203 may, in some circumstances, deter or prevent a change in control of our company even when such change may be beneficial to our stockholders.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS

None.

ITEM 3. DEFAULTS UPON SENIOR SECURITIES

Not applicable.

ITEM 4. MINE SAFEY DISCLOSURES

Not applicable.

ITEM 5. OTHER INFORMATION

On November 3, 2017, we entered into a Lease Agreement, or the Lease, with Marina Boulevard Property, LLC, or the Landlord, for the lease of approximately 87,695 square feet of rentable area of the building located at 7000 Marina Boulevard, Brisbane, California, which is referred to herein as the Premises. We expect to occupy the Premises upon completion of tenant improvements, which we expect will occur by the end of 2018. We plan to use the Premises as our new principal executive offices and for general office, research and development, lab and manufacturing uses. After our relocation, we plan to continue to utilize our currently leased space located in Richmond, California as a research center.

Unless earlier terminated, the term of the Lease, or the Initial Term, will commence on June 1, 2018, which we refer to as the Commencement Date, and will expire the day before the eleventh anniversary of the Commencement Date. The aggregate base rent due over the Initial Term under the terms of the Lease is approximately $38 million (without giving effect to certain rent abatement terms). We will also be responsible for the payment of additional rent to cover certain costs, taxes and insurance. Based on the estimated monthly additional rent for 2017 as set forth in the Lease, we estimate that the additional rent during the Initial Term will be approximately $10 million. We also expect to pay approximately $15 million for leasehold improvements, net of the tenant improvement allowance.

We have two renewal options to extend the term of the Lease for a period of five years each (each, a Renewal Term) beyond the Initial Term. Under the terms of the Lease, the base rent payable with respect to each Renewal Term will be equal to 90% of the

prevailing market rental rent as of the commencement of the applicable Renewal Term. In the event of a default of certain of our obligations under the Lease, Landlord would have right to terminate the Lease.

ITEM 6. EXHIBITS

(a) Exhibits:

3.1(A)	Composite copy of Seventh Amended and Restated Certificate of Incorporation of Sangamo Therapeutics, Inc., as amended.
3.2(B)	Composite copy of Second Amended and Restated Bylaws of Sangamo Therapeutics, Inc., as amended.
31.1	Rule 13a — 14(a) Certification by President and Chief Executive Officer.
31.2	Rule 13a — 14(a) Certification by Principal Financial and Accounting Officer.
32.1*	Certification Pursuant to 18 U.S.C. Section 1350.
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document

* 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.

(A) Incorporated by reference to Exhibit 3.1 to the Registrant's Quarterly Report on Form 10-Q (File No. 000-30171), filed with the SEC on August 9, 2017.

(B) Incorporated by reference to Exhibit 3.2 to the Registrant's Quarterly Report on Form 10-Q (File No. 000-30171), filed with the SEC on August 9, 2017.

SIGNATURES

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

Dated: November 9, 2017

SANGAMO THERAPEUTICS, INC.

/s/ KATHY Y. YI

Kathy Y. Yi
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: November 9, 2017

/s/ Alexander D. Macrae
Alexander D. Macrae
President and Chief Executive Officer

Exhibit 31.2

CERTIFICATION

I, Kathy Y. Yi, certify that:

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

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

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

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

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

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

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

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

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: November 9, 2017

/s/ Kathy Y. Yi
Kathy Y. Yi
Senior Vice President and Chief Financial Officer
(Principal Financial and Accounting Officer)

Exhibit 32.1

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

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

(1) the Company's Quarterly Report on Form 10-Q for the period ended September 30, 2017, to which this Certification is attached as Exhibit 32.1 (the "Report") fully complies with the requirements of Section 13(a) or Section 15(d) of the Exchange Act; and

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

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

Date: November 9, 2017

/s/ Kathy Y. Yi
Kathy Y. Yi
Senior Vice President and Chief Financial Officer
(Principal Financial and Accounting Officer)

Date: November 9, 2017

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 Sangamo Therapeutics, Inc. and furnished to the Securities and Exchange Commission or its staff upon request.